1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Potassium nitrate

Product Number: P8394

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 #: (314) 776-6555

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

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Oxidizer, Carcinogen, Target Organ Effect

Target Organs
Blood, Central nervous system

GHS Classification
Oxidizing solids (Category 3)
Acute toxicity, Oral (Category 5)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Signal word: Warning

Hazard statement(s)
H272 May intensify fire; oxidiser.
H303 May be harmful if swallowed.
H402 Harmful to aquatic life.

Precautionary statement(s)
P220 Keep/Store away from clothing/ combustible materials.

HMIS Classification
Health hazard: 1
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 1

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

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

Formula: KNO₃
Molecular Weight: 101.10 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium nitrate</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7757-79-1</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-818-8</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. FIREFIGHTING MEASURES

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), Potassium oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

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

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). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE
**Precautions for safe handling**
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. Normal measures for preventive fire protection.

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

hygroscopic

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8. **EXPOSURE CONTROLS/PERSOAL 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.

**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**
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.

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9. **PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**

<table>
<thead>
<tr>
<th>Form</th>
<th>crystalline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
</tbody>
</table>
Safety data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>5.5 - 8 at 50 g/l at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 334 °C (633 °F) - lit.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>no data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Ignition temperature</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
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</tr>
<tr>
<td>Lower explosion limit</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
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</tr>
<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Density</td>
<td>2.109 g/cm³</td>
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<tr>
<td>Water solubility</td>
<td>no data available</td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
</tbody>
</table>

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**
Strong reducing agents, Powdered metals, Strong acids, Organic materials

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

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

- **Oral LD50**
  LD50 Oral - rat - 3,750 mg/kg

- **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
IARC: 2A - Group 2A: Probably carcinogenic to humans (Potassium nitrate)
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 Fertility: Other measures of fertility
Reproductive toxicity - rat - Oral
Effects on Newborn: Behavioral.
Reproductive toxicity - rabbit - Oral
Effects on Fertility: Abortion.
Reproductive toxicity - guinea pig - Oral
Effects on Newborn: Stillbirth.
Reproductive toxicity - guinea pig - Oral
Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Embryo or Fetus: Other effects to embryo.

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
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
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Synergistic effects
no data available

Additional Information
RTECS: TT3700000
12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish  
LC50 - Gambusia affinis (Mosquito fish) - 22.5 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates  
EC50 - Daphnia magna (Water flea) - 226 mg/l - 72 h

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
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

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. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1486  Class: 5.1  Packing group: III
Proper shipping name: Potassium nitrate
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1486  Class: 5.1  Packing group: III  EMS-No: F-A, S-Q
Proper shipping name: POTASSIUM NITRATE
Marine pollutant: No

IATA
UN number: 1486  Class: 5.1  Packing group: III
Proper shipping name: Potassium nitrate

15. REGULATORY INFORMATION

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

Potassium nitrate  
CAS-No.  7757-79-1
Revision Date  2007-03-01
SARA 311/312 Hazards
Reactivity Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Potassium nitrate
CAS-No. 7757-79-1
Revision Date 2007-03-01

Pennsylvania Right To Know Components
Potassium nitrate
CAS-No. 7757-79-1
Revision Date 2007-03-01

New Jersey Right To Know Components
Potassium nitrate
CAS-No. 7757-79-1
Revision Date 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
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