1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Lead(II) nitrate
Product Number : 228621
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 # (For both supplier and manufacturer) : (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, Toxic by inhalation., Harmful by ingestion., Irritant, Teratogen

GHS Classification
Oxidizing solids (Category 2)
Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 4)
Serious eye damage (Category 1)
Reproductive toxicity (Category 1A)
Specific target organ toxicity - repeated exposure (Category 2)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger

Hazard statement(s)
H272 May intensify fire; oxidiser.
H302 + H332 Harmful if swallowed or if inhaled
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P220 Keep/Store away from clothing/ combustible materials.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if
present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P501 Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**
- **Health hazard:** 2
- **Chronic Health Hazard:** *
- **Flammability:** 0
- **Physical hazards:** 2

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

**Potential Health Effects**
- **Inhalation** Toxic if inhaled. Causes respiratory tract irritation.
- **Skin** Harmful if absorbed through skin. Causes skin irritation.
- **Eyes** Causes eye irritation.
- **Ingestion** Harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Formula:** \( \text{N}_2\text{O}_6\text{Pb} \)

**Molecular Weight:** 331.21 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead nitrate</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>10099-74-8</td>
</tr>
<tr>
<td>EC-No.</td>
<td>233-245-9</td>
</tr>
<tr>
<td>Index-No.</td>
<td>082-001-00-6</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**
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), Lead 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 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.

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>
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</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>See 1910.1025</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead nitrate</td>
<td>10099-74-8</td>
<td>TWA 0.075 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 0.05 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Central Nervous System impairment Hematologic effects Peripheral Nervous System impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans varies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 0.05 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
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<tr>
<td></td>
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<td>See Appendix C</td>
<td></td>
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</tbody>
</table>

**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
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
Complete suit protecting against chemicals. 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 white

Safety data
pH no data available
Melting point/freezing point Melting point/range: 470 °C (878 °F) - dec.
Boiling point no data available
Flash point no data available
Ignition temperature no data available
Autoignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure no data available
Density 4.53 g/cm3
Water solubility 500 g/l
Partition coefficient: n-octanol/water no data available
Solubility in other solvents
Ethanol 0.4 g/l
Methanol 13.3 g/l
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
Strong reducing agents, Organic materials, Powdered metals

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
Inhalation LC50
Dermal LD50  no data available

Other information on acute toxicity
LD50 Intravenous - rat - 93 mg/kg
LD50 Intraperitoneal - mouse - 74 mg/kg

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:  2B - Group 2B: Possibly carcinogenic to humans
Re-evaluation of inorganic lead compounds, IARC Monograph (Vol. 87) (February 2004) (Lead nitrate)
2A - Group 2A: Probably carcinogenic to humans (Lead nitrate)

IARC:  2B - Group 2B: Possibly carcinogenic to humans
Re-evaluation of inorganic lead compounds, IARC Monograph (Vol. 87) (February 2004) (Lead nitrate)
2A - Group 2A: Probably carcinogenic to humans (Lead nitrate)

NTP:  Reasonably anticipated to be a human carcinogen (Lead nitrate)
Reasonably anticipated to be a human carcinogen
The reference note has been added by TD based on the background information of the NTP. (Lead nitrate)
OSHA: 1910.1025 (Lead nitrate)

Reproductive toxicity

no data available

Teratogenicity
Developmental Toxicity - rat
Specific Developmental Abnormalities: Central nervous system.
Known human reproductive toxicant

no data available

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

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
no data available

Potential health effects

Inhalation  Toxic if inhaled. Causes respiratory tract irritation.
Ingestion   Harmful if swallowed.
Skin       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: OG2100000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish  LC50 - Oncorhynchus mykiss (rainbow trout) - 1.5 mg/l - 96.0 h
                 LC50 - Cyprinus carpio (Carp) - 0.4 - 1.3 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates  EC50 - Daphnia magna (Water flea) - 0.5 - 2.0 mg/l - 48 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.
Very toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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: 1469  Class: 5.1 (6.1)  Packing group: II
Proper shipping name: Lead nitrate
Reportable Quantity (RQ): 10 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1469  Class: 5.1 (6.1)  Packing group: II  EMS-No: F-A, S-Q
Proper shipping name: LEAD NITRATE
Marine pollutant: Marine pollutant

IATA
UN number: 1469  Class: 5.1 (6.1)  Packing group: II
Proper shipping name: Lead nitrate

15. REGULATORY INFORMATION

OSHA Hazards
Oxidizer, Carcinogen, Target Organ Effect, Toxic by inhalation., Harmful by ingestion., Irritant, Teratogen

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:

<table>
<thead>
<tr>
<th>Component</th>
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<th>Revision Date</th>
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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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New Jersey Right To Know Components

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California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

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<tbody>
<tr>
<td></td>
<td>10099-74-8</td>
<td>1992-10-01</td>
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</tbody>
</table>
16. OTHER INFORMATION

Further information
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