

EMS CATALOG NO: 17900
EMS PRODUCT: Lead Nitrate
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MATERIAL SAFETY DATA SHEET

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FOR PRODUCT AND SALES INFORMATION

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PRODUCT IDENTIFICATION

PRODUCT NAME: Lead Nitrate
SYNONYM: Lead dinitrate, Lead (II) nitrate, AC-5394, AC-5394P, AC-5394T
CHEMICAL FORMULA: $Pb(NO_3)_2$
CAS#: 10099-74-8
FORMULA WEIGHT: 331.20
MATERIAL USES: For laboratory use only.

COMPOSITION AND INFORMATION ON INGREDIENTS

NAME: Lead Nitrate
CAS#: 10099-74-8

% BY WEIGHT: 95-100

TLV: EXPOSURE LIMITS: ACGIH (Lead, elemental and
inorganic compounds (as Pb)) TWA
0.05 mg/(Pb)/m3

TOXICITY VALUES OF THE HAZARDOUS INGREDIENTS:

LD50: Acute: 74 mg/kg (Mouse).

LC50: Acute: 93 mg/kg (Rat).

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE AND APPEARANCE/ODOR: White odorless crystals.

pH (1% SOLN/WATER): Not available.

ODOR THRESHOLD: Not available.

% VOLATILE: 0% @ 21oC

FREEZING POINT: Decomposes at 470oC

BOILING POINT: Not applicable.

SPECIFIC GRAVITY: 4.53 (Water = 1)

VAPOR DENSITY: Not applicable.

VAPOR PRESSURE: Not applicable.

WATER/OIL DIST. COEFF.: Not applicable.

EVAPORATION RATE: Not applicable.

SOLUBILITY: Easily soluble in cold water.

FIRE AND EXPLOSION DATA

FLASH POINT: Not available.

FLAMMABLE LIMITS: Not available.

AUTO-IGNITION TEMPERATURE: Not available.

FIRE DEGRADATION PRODUCTS: Oxides of nitrogen and lead. Lead.

FIRE EXTINGUISHING PROCEDURES:

Use flooding quantities of water. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full face piece operated in a pressure demand or other positive pressure mode. Cool containing vessels with

flooding quantities of water until well after fire is out.

FIRE AND EXPLOSION HAZARDS:

Powerful oxidizing agent, may ignite oxidizable materials. Contributes to combustion of other materials. Container explosion may occur under fire conditions or when heated. Contact with other material may cause fire and/or explosion. When contaminated, it is very sensitive. Contact with other material may form shock, heat or friction sensitive mixtures. May react violently with shock, friction or if heated. Toxic gases are evolved on heating lead nitrate above 205°C.

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY: Inhalation and ingestion. Eye contact. Skin contact. Skin absorption.

EFFECTS OF ACUTE EXPOSURE:

May be fatal by ingestion, inhalation or skin absorption. Neurotoxin. Acute lead exposure causes reversible kidney damage and anemia. May impair the reproductive systems of both men and women. Damage may also be caused to the unborn fetus. Lead is a cumulative poison and even exposures to small amounts can raise the body's content to toxic levels. Target organs: blood, central nervous system, liver, kidneys, gastrointestinal system, male and female reproductive system, peripheral nervous system, skeletal muscle, brain, thyroid, testis.

EYE:

Dust may cause irritation, redness and possible damage due to abrasiveness.

SKIN:

Contact over short periods of time may cause severe irritation or burns. Readily absorbed through the skin.

INHALATION:

Highly toxic! Local irritation of the bronchi and lungs can occur, in case of acute exposure, symptoms such as metallic taste, chest and abdominal pain, nausea, vomiting, central nervous system depression, numbness, aching muscles, weakness, dyspnea, and increased blood levels may follow. Prolonged exposure or repeated exposure can lead to lead poisoning and death (see ingestion).

INGESTION:

Highly toxic. Lead salts may cause fatigue, disturbance of sleep, abdominal pain, nausea, headache, anorexia, metallic taste in mouth, muscle and joint pain, dizziness, colic, paralysis, hypertension, thirst, vomiting, constipation, or diarrhea, muscle weakness, irritability, encephalopathy, parasthesia, convulsions, coma and death. Prolonged

overexposure can severely damage red blood cell formation, central and peripheral nervous system, lung, liver and kidney damage with oliguria, hematuria, albuminuria, hemaglobinuria. See chronic overexposure. Estimated lethal dose is 0.5g lead. Nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrate poisoning including methemoglobinemia with cyanosis, nausea, dizziness, increased heart rate and respiratory paralysis.

TOXICOLOGICAL PROPERTIES

EFFECTS OF CHRONIC OVEREXPOSURE:

Symptoms of chronic exposure are like those for ingestion. Lead is a cumulative poison and even exposure to small amounts can raise the body's content to toxic levels. Tiredness, loss of weight, insomnia, blue line on gums, gastrointestinal disorder (constipation and colic), muscle weakness, hypertension with bradycardia, polyneuropathy, nephropathy, anemia, nephritis, encephalopathy, eye, lung, central and peripheral nervous system, liver, kidney, blood, thyroid damage. Reproductive toxin, teratogen, embryotoxic, and carcinogen. Lead compounds may cause testicular damage, sterility, sperm abnormalities, menstrual disorders, adverse effects on general reproductive performance in human. Passes through the placental barrier (can cause birth defects, postnatal development injury, increased foetal lethality and delayed foetal development). Excreted in maternal milk in animal. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated.

FIRST AID MEASURES

EYE CONTACT:

Immediately flush eyes with copious quantities of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention.

SKIN CONTACT:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash contaminated clothing before reusing. Discard contaminated leather articles such as shoes and belt.

INHALATION:

Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate attention.

INGESTION:

If victim is alert and not convulsing, rinse out mouth and give 1/2 to 1 glass of water to dilute. Induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing vomitus, rinse mouth and administer more water. Immediately transport victim to an emergency facility. Never give anything by mouth to an unconscious or convulsing person.

REACTIVITY DATA

STABILITY:

Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, shock, friction, contamination.

HAZARDOUS DECOMP. PRODUCTS: Not available.

INCOMPATIBILITY:

May react violently with reducing agents, organic materials, flammable/combustible materials. Because of explosive reaction or explosive compound formation, lead nitrate must not be mixed with ammonium thiocyanate, potassium acetate, lead hypophosphate, metal powders (e.g., aluminum, iron, copper, copper alloys), carbon, boron phosphide, cyanides, esters, phospham, phosphorus, sodium cyanide, hypophosphites, stannous chloride, thiocyanates, isothiocyanates, sulfur, easily oxidizable materials, citric acid, nitrates, phosphinates.

REACTION PRODUCTS:

Contact with other material may cause fire and/or explosion. Avoid contamination with reactive substances. Contact with other material may form shock, heat or friction sensitive mixtures. Hazardous polymerization will not occur.

PREVENTIVE MEASURES

PROTECTIVE CLOTHING IN CASE OF SPILL AND LEAK:

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Wear disposable coveralls and discard them after use.

SPILL AND LEAK:

Evacuate the area. Eliminate all sources of ignition. Sweep up and place in container for disposal. Avoid raising dust. Use non-sparking tools. Ventilate area and wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch spilled material. Avoid contact with a combustible material (wood, paper, oil, clothing...). Spills of lead nitrate must be promptly

removed.

WASTE DISPOSAL:

Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations.

HANDLING AND STORAGE:

Do not store near flammable or organic substances. Keep at temperature not exceeding 30°C. Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe dust. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Avoid raising dust. Empty containers may contain a hazardous residue. Handle and open container with care. Minimize dust generation and exposure - use dust mask or appropriate protection. Take off immediately all contaminated clothing. Avoid contact with a combustible material (wood, paper, oil, clothing...). This product must be manipulated by qualified personnel. Do not get in eyes, on skin or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible). Since the product is unstable, avoid sudden shocks, like dropping or rolling. Do not drop, roll or skid container.

PROTECTIVE MEASURES

PROTECTIVE CLOTHING:

Splash goggles. Impervious gloves (rubber or plastic), apron, coveralls, and/or other resistant protective clothing. Prior to use, user should confirm impermeability. Sufficient to protect skin. Have available and use as appropriate, face shields, rubber suits, aprons, and boots. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV do not breathe vapor. Wear self-contained breathing apparatus. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.

ENGINEERING CONTROLS:

Use only in a chemical fume hood to keep airborne levels below recommended exposure limits. Do not use in unventilated spaces. Adequate ventilation and clean up must be maintained to minimize dust accumulation. Dust layers should not be permitted to accumulate.

OTHER INFORMATION

SPECIAL PRECAUTIONS OR COMMENTS:

Powerful oxidizing agent; may ignite oxidizable materials. Highly toxic! Carcinogen! Mutagen! Reproductive toxin! Teratogen! Embryotoxic! Neurotoxic! Nephrotoxic! Severe Irritant! Possible risks of irreversible effects. Danger of cumulative effects. Do not breathe dust. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Keep away from heat, sparks and flame. Avoid shock and friction. When contaminated, it is very sensitive. Contact with other material may cause fire and/or explosion. Risk of explosion by shock, friction, fire or other sources of ignition. Handle and open container with care. Container should be opened only by a technically qualified person. Harmful to aquatic life at low concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

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