SPI Supplies Division
Structure Probe, Inc.
206 Garfield Ave., West Chester, PA 19381-0656 USA
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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: April 4, 2017

SPI Catalog # 02532-BA, 02532-AB

SPI-Chem™ Lead Nitrate

Section 1.1: Identification

Chemical Name/Synonyms ..... Lead (II) Nitrate

Product or Trade Name ..... SPI-Chem™ Lead Nitrate

CAS #'s 10099-74-8

Chemical Formula..... $Pb(NO_3)_2$

Section 1.2: Relevant Uses/Restrictions

Laboratory Chemical; Stain for Electron Microscopy

Section 1.3: Supplier of the Safety Data Sheet

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Section 1.4: Emergency telephone number

Emergencies
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...
Worldwide phone: 1-(703)-741-5970
Toll-free phone: 1-(800)-424-9300 USA + Canada only

Section 2: Hazard Identification

2.1 Classification of the substance

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing solids	Category 3
Acute toxicity, oral	Category 4
Acute toxicity, inhalation	Category 4
Serious eye damage	Category 1
Carcinogenicity	Category 1B

Reproductive toxicity	Category 1A
Specific target organ toxicity – repeated exposure	Category 2
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

2.2 Label elements

Pictogram

Signal Word: Danger

Hazard statements:

H272	May intensify fire; oxidizer.
H302 + H332	Harmful is swallowed or if inhaled.
H318	Causes serious eye damage.
H350	May cause cancer.
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 statements:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat.
P220	Keep / Store away from clothing/ combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + p338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + p313	If exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other Hazards: None known.

Hazardous Material Information System USA
- Health 2
- Fire Hazard 0
- Reactivity 2
- Personal Protection .....

NFPA Rating (estimated)
- Health 2
- Flammability..... 0
- Reactivity 2
- Special hazard: ..... OX

Section 3: Composition

3.1 Substances:

Formula:	$Pb(NO_3)_2$
Molecular weight:	331.21 g/mol
CAS #:	10099-74-8
EC #:	233-245-9
Percentage:	<= 100%

Hazardous components:

Lead nitrate is included in the Candidate List of substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH).

Section 4: First Aid Measures

4.1 Description of 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, mover 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.

4.2 Most important symptoms and effects, both acute and delayed:
- The most important known symptoms and effects are described in the labelling (see Section 2.2) and/ or in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed:
- No data available.

Section 5: Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media:

Water spray, Alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Special hazards arising from the substance or mixture

No data available.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Use water spray to cool unopened containers.

Section 6: Accidental Release Measures

6.1 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.
For personal protection, see Section 8.

6.2 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.

6.3 Methods and material for containment and cleaning up

Sweep up and shovel.
Contain spillage.
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.

6.4 Reference to other sections

For personal protection, see Section 8.
For disposal, see Section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes.
Avoid formation of dust and aerosols.
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
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.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Storage class: Oxidizing hazardous materials.

7.3 Specific end uses

Laboratory Chemical; Stain for Electron Microscopy
This material is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

Section 8: Exposure Controls and Personal Protection

8.1 Control parameter and Personal Protection

Workplace exposure limits for Lead Nitrate, CAS # 10099-74-8:

Value	Control parameters	Basis	Remarks
TWA	0.050000 mg/m^3	ACGIH Threshold Limit Values	Central Nervous System impairment Hematologic effects Peripheral Nervous System impairment Substances for which there is a BEI index Confirmed animal carcinogen with unknown relevance to humans
PEL	0.050000 mg/m^3	OSHA Specifically Regulated Chemicals/Carcinogens	If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Maximum permissible limit (in µg/m^3=400÷hours worked in the day. 29 CFR **1910.1025(a)(1)** This section applies to all occupational exposure to lead, except as provided in paragraph (a)(2). **1910.1025(a)(2)** This section does not apply to the construction industry or to agricultural operations covered by 29 CFR Part 1928, OSHA specifically regulated carcinogen.
TWA	0.050000 mg/m^3	NIOSH Recommended Exposure Limits	See NIOSH Appendix C: Supplementary Exposure Limits.
PEL	0.050000 mg/m^3	OSHA Specifically Regulated Chemicals/ Carcinogens	29 CFR 1910.1025(a)(1) This section applies to all occupational exposure to lead, except as Provided in paragraph (a)(2). 1910.1025(a)(2) This section does not apply to the construction industry or to agricultural operations covered by 29 CFR Part 1928, OSHA specifically regulated carcinogens.
PEL	0.05 mg/m^3	California Permissible	See California Code of Regulations,

Exposure Limits for Chemical Contaminants — Title 8, Section 5198

Biological limit values:

Lead and its inorganic compounds: 30 µg/100 ml.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice.
Wash hands before breaks and at the end of workday.

8.2.2 Individual protection measures

Eye / face protection:

Face shield with safety glasses. Use equipment for eye protection tested and approved under appropriate government standards, such as NIOSH (US) or EN 166 (EU).

Skin 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.

Suggested glove criteria: Nitrile rubber, minimum layer thickness 0.11 mm, break through time 480 minutes.

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, then the glove material must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use.

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.

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)>

8.2.3 Environmental exposure controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:

Form: Solid

Color: White

Odor: No data available

Odor threshold: No data available

pH: No data available

Melting point/Freezing point: Melting point/range: 470 °C (878 °F)

Boiling point/Boiling point range: No data available

Flash Point: No data available

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor Pressure: No data available

Vapor density: No data available

Relative density: 4.53 g/cm^3

Solubility in water: 500 g/L

Partition coefficient (n-octanol/water): No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing Properties: The substance or mixture is classified as oxidizing with the category 2

9.2 Other information

Solubility in other solvents:

Ethanol: 0.4 g/L

Methanol: 13.3 g/L

Section 10: Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Chemical Stability: Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions: No data available.

10.4 Conditions to avoid: No data available.

10.5 Incompatible materials: Strong reducing agents, Organic materials, Powdered metals.

10.6 Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions: Nitrogen oxides (NO_x), Lead oxides.

Other decomposition products: No data available.

In the event of fire: See Section 5.

Section 11: Toxicological Information

Information on the likely routes of exposure

11.1 Information on toxicological effects

a. acute toxicity: No data available.

Inhalation: No data available.
Dermal: No data available.
LD50 Intravenous – Rat: 93 mg/kg
LD50 Intraperitoneal – Mouse: 74 mg/kg

b. skin corrosion/irritation: No data available.

c. serious eye damage/irritation: No data available.

d. respiratory or skin sensitization: No data available.

e. germ cell mutagenicity: No data available.

f. carcinogenicity

IARC: 2A – Group 2A: Probably carcinogenic to humans. (Lead nitrate)

NTP: Reasonably anticipated to be a human carcinogen, based on the background information of the NTP. (Lead nitrate)

OSHA: OSHA specifically regulated carcinogen. (Lead Nitrate)

g. reproductive toxicity:

Known human reproductive toxicant.

Developmental Toxicity – Rat: Specific developmental abnormalities: Central Nervous System

h. STOT-single exposure: No data available.

i.STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure.

j. aspiration hazard: No data available.

Additional information:

RTECS OG2100000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Lead salts have been reported to cross the placenta and to induce embryo- and feto- mortality.

Stomach – Irregularities – Based on Human Evidence.

Section 12: Ecological Information

12.1 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 h

Toxicity to daphnia and other aquatic invertebrates:

EC50	Daphnia magna (Water flea)	0.5-2.0 mg/l	48 h

12.2 Persistence and degradability

No data available.

12.3 Bio-accumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 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.
Very toxic to aquatic organisms.
May cause long-term adverse effects in the aquatic environment.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Product: Burn in a chemical incinerator equipped with an after burner and scrubber but exert extra care in igniting as the 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.

Section 14: Transport Information

DOT

UN number: 1469
Class: 5.1 (6.1)
Packing Group: II
Proper shipping name: Lead nitrate
Reportable Quantity (RQ): 10 lbs
Marine pollutant: yes
Poison Inhalation Hazard: no

IATA

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

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: yes

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture

SARA 302 Components
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
Lead nitrate CAS# 10099-74-8 Revision Date: 1993-04-24

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

STATE Right-to-Know Lists:
Lead nitrate, CAS# 10099-74-8, is on the Massachusetts, Pennsylvania, and New Jersey Right-to-Know Lists, Revision Date: 1993-04-24.

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer:
Lead nitrate, CAS# 10099-74-8 Revision Date: 2007-09-28

15.2 Chemical Safety Assessment
No further information available.

Date of Preparation: 04 April 2017

Abbreviations and acronyms
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
CMRG: Chemical Manufacturer's Recommended Guidelines
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulative and Toxicological
vPvB: very Persistent and very Bio-accumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
STEL: Short Term Exposure Limit
CEIL: Ceiling

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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