SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Lead Nitrate

Other means of identification
Product No.: 2322

Recommended restrictions
Recommended use: For Laboratory, Research or Manufacturing Use.
Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name:	Avantor Performance Materials, LLC
Address:	100 Matsonford Rd, Suite 200 Radnor, PA 19087
Telephone:	Customer Service: 855-282-6867
Contact Person:	Product Information Compliance
E-mail:	info@avantormaterials.com

Emergency telephone number:
CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Oxidizing solids	Category 2

Health Hazards

Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation - dust and mist)	Category 4
Serious Eye Damage/Eye Irritation	Category 1
Carcinogenicity	Category 1B
Toxic to reproduction	Category 1A
Specific Target Organ Toxicity - Repeated Exposure	Category 2[1.]

Target Organs
1. blood system, Kidney, Nervous System

Unknown toxicity - Health

Acute toxicity, oral	100 %
Acute toxicity, dermal	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 1
Chronic hazards to the aquatic environment	Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment	0 %
Chronic hazards to the aquatic environment	100 %

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
May intensify fire; oxidizer.
Harmful if swallowed.
Harmful if inhaled.
Causes serious eye damage.
May damage fertility or the unborn child.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

Response: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. 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. Collect spillage.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Substances

Chemical Identity	CAS number	Content in percent (%)*
Lead nitrate	10099-74-8	100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Rinse mouth thoroughly. Call a POISON CENTER/doctor if you feel unwell.

Inhalation: Move to fresh air. Get medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed

Symptoms: Harmful if swallowed. Causes serious eye damage.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Strong oxidizer - contact with other material may cause fire. In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: May intensify fire; oxidizer. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Use personal protective equipment. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.

Methods and material for containment and cleaning up: Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.

Notification Procedures: Prevent entry into waterways, sewer, basements or confined areas. Stop leak if you can do so without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling: Keep away from heat. Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in a cool and well-ventilated place. Store in a dry place. Store away from incompatible materials.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Lead nitrate - as Pb	TWA	0.05 mg/m3	US. ACGIH Threshold Limit Values (2011)
Lead nitrate	REF	29 CFR 1910.1025	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (03 2012)
	TWA	0.05 mg/m3	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (02 2006)
	OSHA_ACT	0.03 mg/m3	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (02 2006)
Lead nitrate - as Pb	TWA	0.05 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Lead nitrate (Lead: Sampling time: Not critical.)	200 µg/l (Blood)	ACGIH BEI (03 2017)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eye/face protection:	Use tight fitting goggles if dust is generated.
Skin Protection	
Hand Protection:	Wear protective gloves.
Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Crystals
Color:	White or colorless
Odor:	Odorless
Odor threshold:	No data available.
pH:	3.0 - 4.0 (200 g/l, 25 °C)
Melting point/freezing point:	470 °C
Initial boiling point and boiling range:	> 500 °C
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	11.0 (Air=1)
Density:	4.53 g/ml (20 °C)
Relative density:	4.53 (20 °C)
Solubility(ies)	
Solubility in water:	376.5 g/l (0 °C) 565 g/l (20 °C) 1,270 g/l (100 °C)
Solubility (other):	ammonia: Soluble
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	400 °C
Decomposition temperature:	No data available.

Viscosity: No data available.

Other information

Molecular weight: 331.21 g/mol (HNO3)

10. Stability and reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical Stability: Material is stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Conditions to avoid: Contact with incompatible materials. Heat, sparks, flames.

Incompatible Materials: Strong oxidizing agents. Flammable/combustible material. Organic compounds. Hydrogen peroxide (H2O2)

Hazardous Decomposition Products: Toxic metal fumes may form when heated to decomposition.

11. Toxicological information

Information on likely routes of exposure

Inhalation: Harmful if inhaled.

Skin Contact: May cause irritation.

Eye contact: Causes serious eye damage.

Ingestion: Harmful if swallowed. Lead is absorbed into the body by ingestion.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: No data available.

Dermal
Product: No data available.

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: May cause skin irritation.

Serious Eye Damage/Eye Irritation
Product: Causes serious eye damage.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Lead nitrate	Overall evaluation: 2A. Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Lead nitrate	Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: May cause damage to organs through prolonged or repeated exposure.

Target Organs
Specific Target Organ Toxicity - Repeated Exposure: blood system, Kidney, Nervous System

Aspiration Hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Specified substance(s):

Lead nitrate	LC 50 (Carp (Cyprinus carpio), 96 h): 0.17 mg/l LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss), 96 h): 1 mg/l

Aquatic Invertebrates
Product: No data available.

Specified substance(s):

Lead nitrate	LC 50 (Water flea (Daphnia magna), 48 h): 2.3 mg/l EC 50 (Water flea (Daphnia magna), 48 h): 1.753 - 2.003 mg/l LC 50 (Ostracod (Cypris), 48 h): 4.3 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: There are no data on the degradability of this product.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil: No data available.

Other adverse effects: Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 1469
UN Proper Shipping Name:	Lead nitrate
Transport Hazard Class(es)	
Class:	5.1
Label(s):	5.1, 6.1
Packing Group:	II
Marine Pollutant:	Yes

Special precautions for user: Not determined.

IMDG

UN Number: UN 1469
UN Proper Shipping Name: LEAD NITRATE
Transport Hazard Class(es)
Class: 5.1
Label(s): 5.1, 6.1
EmS No.: F-A, S-Q
Packing Group: II
Marine Pollutant: Yes
Special precautions for user: Not determined.

IATA

UN Number: UN 1469
Proper Shipping Name: Lead nitrate
Transport Hazard Class(es):
Class: 5.1
Label(s): 5.1, 6.1
Packing Group: II
Marine Pollutant: Yes
Special precautions for user: Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Chemical Identity	OSHA hazard(s)
Lead nitrate	Central nervous system Acute toxicity Reproductive toxicity Kidney Blood

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
Lead nitrate	10 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Oxidizer (liquid, solid or gas)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Lead nitrate	10 lbs.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Lead nitrate	10000 lbs.

SARA 313 (TRI Reporting)

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Lead nitrate	10000 lbs.	25000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

Chemical Identity	Reportable quantity
Lead nitrate	Reportable quantity: 10 lbs.

US State Regulations

US. California Proposition 65

Lead nitrate	Carcinogenic.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Lead nitrate

US. Massachusetts RTK - Substance List

Chemical Identity
Lead nitrate

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
Lead nitrate

US. Rhode Island RTK

Chemical Identity
Lead nitrate

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

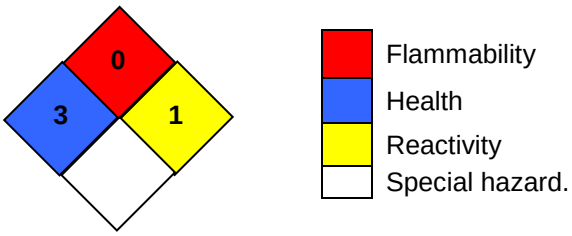
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16.Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date:	11-02-2018
Revision Information:	Not relevant.
Version #:	1.1
Source of information:	Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.
Further Information:	No data available.

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