

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 17, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Reference Material for Cerium Nitrate Titration Solution

1.2 Other means of identification

Product number CPRM2831
Other names PB(NO₃)₂;LeadNitrateAcs;LeadNitrateAr

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Skin sensitization, Sub-category 1B
Serious eye damage, Category 1
Acute toxicity - Category 4, Inhalation
Carcinogenicity, Category 2
Reproductive toxicity, Category 1A
Specific target organ toxicity – repeated exposure, Category 1
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H332 Harmful if inhaled
H360 May damage fertility or the unborn child
H372 Causes damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P271 Use only outdoors or in a well-ventilated area.
P203 Obtain, read and follow all safety instructions before use.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P317 If skin irritation or rash occurs: Get medical help.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P317 Get medical help.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.
P391 Collect spillage.
P405 Store locked up.
P501 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.

Storage

Disposal

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Reference Material for Cerium Nitrate Titration Solution	Lead dinitrate	10099-74-8	233-245-9	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention . See Notes.

4.2 Most important symptoms/effects, acute and delayed

Early symptoms of lead intoxication via inhalation or ingestion are most commonly gastrointestinal disorders, colic, constipation, etc.; weakness, which may go on to paralysis, chiefly of the extensor muscles of the wrists and less often the ankles, is noticeable in the most serious cases. Ingestion of a large amount causes local irritation of the alimentary tract; pain, leg cramps, muscle weakness, paresthesias, depression, coma, and death may follow in 1 or 2 days. Contact with eyes causes irritation. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Nitrates, nitrites, and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Evacuation: If fire becomes uncontrollable - consider evacuation of one-half (1/2) mile radius.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fire. Behavior in Fire: Increases the intensity of a fire when in contact with burning material. Use plenty of water to cool containers or spilled material. (USCG, 1999)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

6.3 Methods and materials for containment and cleaning up

Environmental considerations - Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO contact with flammables. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from combustible substances, reducing agents and food and feedstuffs. Stow away from foodstuffs.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.05 mg/m³, as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans). MAK: carcinogen category: 2; germ cell mutagen group: 3A. EU-OEL: (binding): 0.15 mg/m³ as TWA

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state

Lead nitrate is a white crystalline solid. The material is soluble in water. It is noncombustible but it will accelerate the burning of combustible materials. If large quantities of the material are involved in the fire an explosion may result. Prolonged exposure of the material to fire or heat may result in an explosion. Toxic oxides of nitrogen are produced in fires involving this material.

Colour

White or colorless translucent crystals

Odour

no data available

Melting point/freezing point	470°C
Boiling point or initial boiling point and boiling range	83°C at 760 mmHg
Flammability	Not combustible but enhances combustion of other substances.
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	290°C
pH	3.0-4.0 (20% aq soln at 25 deg C)
Kinematic viscosity	no data available
Solubility	Slightly soluble in ethanol
Partition coefficient n-octanol/water	no data available
Vapour pressure	49.8mmHg at 25°C
Density and/or relative density	4.53
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes at 290°C. This produces toxic fumes of nitrogen oxides and lead oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. Reacts violently with ammonium thiocyanate, red-hot carbon and lead hypophosphate.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Lead nitrate reacts with brilliant sparks when projected on red-hot carbon. Mixtures of metal/nonmetal nitrates with alkyl esters may explode because of the formation of alkyl nitrates; mixtures of nitrate with phosphorus, tin (II) chloride or other reducing agents may react explosively [Bretherick 1979, p. 108-109]. An explosion of guanidine nitrate demolished an autoclave built to withstand 50 atmospheres, in which it was being made from ammonium thiocyanate and lead nitrate [C. Angew. Chem. 49:23, 1936].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Ignites or explodes when in presence of organic or easily oxidizable compd.

10.6 Hazardous decomposition products

When heated to decomp ... emits very toxic fumes of /lead and nitrogen oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

No evaluation could be made of the carcinogenicity of ... lead nitrate.

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

The substance may have effects on the blood, gastrointestinal tract, kidneys, liver and nervous system. This may result in anaemia, hypertension, kidney impairment, liver impairment, convulsions and paralysis. This substance is possibly carcinogenic to humans. Causes serious reproductive toxicity in humans.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill, weight 5 g, length 7 cm (5-11 cm)); Conditions: freshwater, static, 20 deg C, dissolved oxygen >5 mg/L; Concentration: 6300 ug/L for 24 hr /chemically pure, total lead ion
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water flea, age <24 hr 1st instar larvae); Conditions: freshwater, static, 23 deg C; Concentration: 1815 ug/L for 48 hr (95% confidence interval: 1753-2003 ug/L); Effect: intoxication, immobilization /total lead ion
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1469 (For reference only, please check.)	IMDG: UN1469 (For reference only, please check.)	IATA: UN1469 (For reference only, please check.)
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14.2 UN Proper Shipping Name

ADR/RID: LEAD NITRATE (For reference only, please check.)	IMDG: LEAD NITRATE (For reference only, please check.)	IATA: LEAD NITRATE (For reference only, please check.)
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14.3 Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)	IMDG: 5.1 (For reference only, please check.)	IATA: 5.1 (For reference only, please check.)
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14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes
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14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Lead dinitrate	Lead dinitrate	10099-74-8	233-245-9
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date April 17, 2024

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.