

**INSERT
COMPANY
LOGO
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SAFETY DATA SHEET

Creation Date 07-Jul-2009

Revision Date 14-Jul-2017

Revision Number 7

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description:	Lead(II) nitrate
Cat No. :	423850000; 423850025; 423850050; 423855000
Synonyms	Nitric acid, lead(2+) salt; Plumbous nitrate.; Lead dinitrate
CAS-No	10099-74-8
EC-No.	233-245-9
Molecular Formula	N2 O6 Pb

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	
E-mail address	begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Oxidizing solids	Category 2 (H272)
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Health hazards

Acute oral toxicity	Category 4 (H302)
Acute Inhalation Toxicity - Dusts and Mists	Category 4 (H332)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Reproductive Toxicity	Category 1A (H360Df)
Specific target organ toxicity - (repeated exposure)	Category 2 (H373)

Environmental hazards

Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

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2.2. Label elements



Signal Word

Danger

Hazard Statements

- H272 - May intensify fire; oxidizer
- H302 - Harmful if swallowed
- H332 - Harmful if inhaled
- H318 - Causes serious eye damage
- H360Df - May damage the unborn child. Suspected of damaging fertility
- H373 - May cause damage to organs through prolonged or repeated exposure
- H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

- P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
- P281 - Use personal protective equipment as required
- P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P273 - Avoid release to the environment
- P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

Additional EU labelling

Restricted to professional users

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Lead(II) nitrate	10099-74-8	EEC No. 233-245-9	>95	Ox. Sol. 2 (H272) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Eye Dam. 1 (H318) Repr. 1A (H360Df) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

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Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

Causes severe eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Oxidizer: Contact with combustible/organic material may cause fire. Thermal decomposition can lead to release of irritating gases and vapors. May ignite combustibles (wood, paper, oil, clothing, etc.). Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products

Nitrogen oxides (NO_x), lead oxides.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure

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adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid dust formation.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Avoid dust formation. Provide adequate ventilation. Keep combustibles (wood, paper, oil, etc) away from spilled material. Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment. Keep away from clothing and other combustible materials. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe dust.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): UK - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

Component	European Union	The United Kingdom	France	Belgium	Spain
Lead(II) nitrate		STEL: 0.45 mg/m ³ 15 min TWA: 0.15 mg/m ³ 8 hr	TWA / VME: 0.1 mg/m ³ (8 heures). restrictive limit		TWA / VLA-ED: 0.15 mg/m ³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Lead(II) nitrate			TWA: 0.05 mg/m ³ 8 horas		

Component	Austria	Denmark	Switzerland	Poland	Norway
Lead(II) nitrate	MAK-KZW: 0.4 mg/m ³ 15 Minuten		STEL: 0.8 mg/m ³ 15 Minuten		TWA: 0.05 mg/m ³ 8 timer

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	MAK-TMW: 0.1 mg/m ³ 8 Stunden		TWA: 0.1 mg/m ³ 8 Stunden		
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Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

MDHS6/3 Lead and inorganic compounds of lead in air Laboratory method using flame or electrothermal atomic absorption spectrometry

Derived No Effect Level (DNEL) No information available

<u>Route of exposure</u>	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral Dermal Inhalation				

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Nitrile rubber				
Neoprene				
PVC				

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

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Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	White	
Physical State	Solid	
Odor	Odorless	
Odor Threshold	No data available	
pH	3 - 4	20% aq. sol
Melting Point/Range	470 °C / 878 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	Not applicable	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	negligible	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	4.530	
Bulk Density	No data available	
Water Solubility	343 g/l	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature		
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	Oxidizer	

9.2. Other information

Molecular Formula	N2 O6 Pb
Molecular Weight	331.2

SECTION 10: STABILITY AND REACTIVITY

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10.1. Reactivity

Yes

10.2. Chemical stability

Oxidizer: Contact with combustible/organic material may cause fire.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous Reactions

Hazardous polymerization does not occur.
None under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Excess heat. Combustible material.

10.5. Incompatible materials

Strong reducing agents. Organic materials. Powdered metals. Combustible material.

10.6. Hazardous decomposition products

Nitrogen oxides (NO_x). lead oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral Category 4
Dermal No data available
Inhalation Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Lead(II) nitrate	LD50 = 93 mg/kg (Rat)		

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Lead(II) nitrate				Group 2A

(g) reproductive toxicity; Reproductive Effects Developmental Effects Teratogenicity

Category 1A
Experiments have shown reproductive toxicity effects on laboratory animals.
Developmental effects have occurred in experimental animals.
Teratogenic effects have occurred in experimental animals.

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(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

Target Organs Liver, Kidney, Central nervous system (CNS), Blood, Reproductive System.

(j) aspiration hazard; Not applicable
Solid

Symptoms / effects, both acute and delayed No information available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Lead(II) nitrate	LC50: 1.5 mg/l/96 h (Oncorhynchus mykiss) LC50: 0.4 - 1.3 mg/l/96 H (Cyprinus carpio)	EC50: 0.5 - 2 mg/l/48 H (Daphnia magna)		

12.2. Persistence and degradability

Persistence
Degradability
Degradation in sewage treatment plant

The product includes heavy metals. Prevent release into the environment. Special pretreatment required
May persist, based on information available.
Not relevant for inorganic substances.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

May have some potential to bioaccumulate

12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

No data available for assessment.

12.6. Other adverse effects

Endocrine Disruptor Information
Persistent Organic Pollutant
Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors
This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products

Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

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European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1469
14.2. UN proper shipping name LEAD NITRATE
14.3. Transport hazard class(es) 5.1
 Subsidiary Hazard Class 6.1
14.4. Packing group II

ADR

14.1. UN number UN1469
14.2. UN proper shipping name LEAD NITRATE
14.3. Transport hazard class(es) 5.1
 Subsidiary Hazard Class 6.1
14.4. Packing group II

IATA

14.1. UN number UN1469
14.2. UN proper shipping name LEAD NITRATE
14.3. Transport hazard class(es) 5.1
 Subsidiary Hazard Class 6.1
14.4. Packing group II

14.5. Environmental hazards Dangerous for the environment
 Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Lead(II) nitrate	233-245-9	-		X	X	-	X	X	X	X	X

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Lead(II) nitrate			SVHC Candidate list - 233-245-9 - Toxic for reproduction, Article 57c

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National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Lead(II) nitrate	WGK 3	

Component	France - INRS (Tables of occupational diseases)
Lead(II) nitrate	Tableaux des maladies professionnelles (TMP) - RG 1

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

Take note of Dir 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H272 - May intensify fire; oxidizer

H302 - Harmful if swallowed

H318 - Causes serious eye damage

H332 - Harmful if inhaled

H360Df - May damage the unborn child. Suspected of damaging fertility

H373 - May cause damage to organs through prolonged or repeated exposure

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

First aid for chemical exposure, including the use of eye wash and safety showers.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

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Chemical incident response training.

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Revision Date 14-Jul-2017
Revision Summary Update to Format.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet