Safety Data Sheet LEAD (II) OXIDE

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SECTION 1: Identification

GHS Product identifier

Product name	LEAD (II) OXIDE

Other means of identification

Lead Monoxide

Recommended use of the chemical and restrictions on use

Storage batteries, ceramic cements and fluxes, pottery and glazes, glass, chromium pigments, oil refining, varnishes, paints, enamels; assay of precious metal ores, manufacture of red lead, cement (with glyercol), acid-resisting compositions, match-head compositions, other lead compounds, rubber accelerator and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, inhalation, Cat. 4
- Acute toxicity, oral, Cat. 4
- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1
- Carcinogenicity, Cat. 2
- Germ cell mutagenicity, Cat. 2
- Toxic to reproduction, Cat. 1
- Specific target organ toxicity following repeated exposure, Cat. 2

GHS label elements, including precautionary statements

Pictograms

Signal word	**Warning**

Hazard statement(s)

H302	Harmful if swallowed
H332	Harmful if inhaled
H341	Suspected of causing genetic defects
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
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

Precautionary statement(s)

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands 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	IF SWALLOWED: Call a POISON CENTER/doctor/physcian if you feel unwell,
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER/doctor/physcian if you feel unwell.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 223.2

Components

Component	CAS no.	Concentration
Lead (II) oxide (EC no.: 215-267-0)	**1317-36-8**	**100 % (weight)**
CLASSIFICATIONS: Carcinogenicity, Cat. 2; Germ cell mutagenicity, Cat. 2; Specific target organ toxicity following repeated exposure, Cat. 2; Toxic to reproduction, Cat. 1. HAZARDS: H341 - Suspected of causing genetic defects [route]; H351 - Suspected of causing cancer [route]; H360 - May damage fertility or the unborn child [effect, route]; H373 - May cause damage to organs [organs] through prolonged or repeated exposure [route].		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	First Aid Facilities: Maintain eyewash fountain and drench facilities in work area.

	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).
If inhaled	If inhaled, remove affected person from contaminated area. Keep at rest until recovered. If symptoms develop and/or persist seek medical attention.
In case of skin contact	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. If swallowed, do NOT induce vomiting.

Most important symptoms/effects, acute and delayed
Lead compounds can accumulate in the body and cause significant long-term health effects. Medical advice should be sought following any exposure.

Indication of immediate medical attention and special treatment needed, if necessary
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire.

Specific hazards arising from the chemical
Irritating and highly toxic fumes and gases, including lead/lead oxides and nitroxides.

Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Runoff may pollute waterways.

Special protective actions for fire-fighters
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

Methods and materials for containment and cleaning up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling
Avoid contact with skin and eyes. Do not eat, drink or smoke while handling. Wash hands with soap and water after handling. For precautions see section 2.

Conditions for safe storage, including any incompatibilities
Toxic materials should be stored in a separate safety storage cabinet or room. Store in tightly closed containers, in a cool, dry, ventilated area away from incompatible materials. Keep apart from oxidising agents. Store away from foodstuffs. Protect against physical damage, direct sunlight and moisture. Store away from combustible materials. Areas in which exposure to lead metal or lead compounds may occur should be identified by signs or appropriate means, and access to the area should be limited to authorized persons.

Storage Regulations: Refer Australian Standard AS 4452 'The storage and handling of toxic substances'.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls
In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

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

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection
Footwear: Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection: Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection
Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	Yellow to reddish crystals (depending on treatment and purity).
Color	Yellow to reddis
Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.

Explosive properties	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	No data available.
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Insoluble. Solubility in Organic Solvents: Soluble in acids and alkalis.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 9.56 g/cm3
Relative vapor density	No data available.
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Chemical stability
Stable.

Possibility of hazardous reactions
Hazardous Polymerization: Will not occur.

Conditions to avoid
Avoid storing in direct sunlight and avoid extremes of temperature.

Incompatible materials
Hydrogen peroxide, chemical active metals, aluminum, combustible materials, lithium carbide, chlorinated rubber, chlorine, boron, hydrides, ethylene, fluorine, sulfides, acetylides and strong reducing agents.

Hazardous decomposition products
Thermal decomposition may produce oxides of lead.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Ingestion: Harmful if swallowed. May cause abdominal pain, spasms, nausea, vomiting, headache, joint and muscle weakness, 'lead line' on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock. The following applies to lead compounds in general: Due to the poor absorbability via the gastrointestinal tract, only very high doses lead to acute cases of intoxication. Excessive exposure to lead salts can affect blood forming organs, kidneys and nervous and digestive systems. The synthesis of haemoglobin is inhibited and results in anaemia. If left untreated, neuromuscular dysfunction, possible paralysis, and

encephalopathy can result. Additional symptoms of overexposure include: joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhea, constipation, nausea, vomiting, blue line on the gums, insomnia, and metallic taste. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death.

Inhalation: Harmful by inhalation. May cause irritation of bronchia and lungs. May cause metallic taste, headaches, dizziness, join and muscle weakness, chest and abdominal pain and increased blood levels may follow.

Skin corrosion/irritation
In general, lead compounds are not considered irritating to skin (REACH). No effects were reported in skin irritation assays in rabbits citing OECD TG 404 for lead dioxide (CAS No: 1309-60-0), lead oxide, red (CAS No: 1314-41-6) and lead monoxide (CAS No: 1317-36-8).

Serious eye damage/irritation
In general, lead compounds were not reported to be irritating to eyes or having caused serious eye damage (REACH). No effects were reported in eye irritation assays in rabbits citing OECD TG 405 for lead dioxide (CAS No: 1309-60-0), lead oxide, red (CAS No: 1314-41-6) and lead monoxide (CAS No: 1317-36-8).

Respiratory or skin sensitization
Several lead compounds, including lead dioxide (CAS No: 1309-60-0), lead oxide, red (CAS No: 1314-41-6) and lead monoxide (CAS No: 1317-36-8) were reported to be non-sensitisers (REACH). It was reported that the compounds gave negative results for skin sensitisation in guinea pigs when tested according to OECD TG 406.

Germ cell mutagenicity
Suspected of causing genetic defects - Cat. 2 (H341)

Possible mutagen.

Carcinogenicity
Lead compounds, inorganic are evaluated in the IARC Monographs (Vol. 87; 2006) as Group 2B: Probably carcinogenic to humans.

Reproductive toxicity
May damage the unborn child. Suspected of damaging fertility - Repr. 1A (H360Df)

Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)].
Reproductive Toxicity category 1: R61 May cause harm to the unborn child.
Category 1: Established human carcinogens are those substances known to be carcinogenic to humans. There is sufficient evidence to establish a causal association between human exposure to these substances and the development of cancer.

Reproductive Toxicity category 3: R62 Possible risk of impaired fertility.
Category 3: Substances suspected of having carcinogenic potential are those substances which have possible carcinogenic effects on humans but in respect of which the available information is not adequate for making a satisfactory assessment. There is some evidence from appropriate animal and epidemiological studies, but this is insufficient to place the substance in Category 2.

The material decreases human motility counts, however increases the rate of stillbirths, preterm deliveries and neurological abnormalities.

Specific target organ toxicity (STOT) - single exposure
No data available.

Specific target organ toxicity (STOT) - repeated exposure
H373 May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional information
Chronic Effects: An inorganic compound such as Lead, is a cumulative harmful poison when exposed in small amounts can raise the body's content to toxic levels. Prolonged or repeated exposure to lead toxicity effects the nerous system (memory loss, tiredness, headaches, fatigue, irritability, decreased libido, dizziness, depression, encephalopathy (brain damage caused by altered brain functiona nd structure), behavioural effects, altered mood states, disturbances in hand-eye coordination, reaction times, visual motor performance, and mental performance, disturbances to vision, changes in hearing, muscle and joint weakness of the arms and legs, footdrop and wristdrop), heart/blood vessels (reduced haemoglobin synthesis and production, reduced life span and function of red blood cells, anaemia, increased blood pressure), digestive system (loss of appetite, anorexia, with severe abdominal pain, diarrhea, inflammation of the stomach walls (gastritis) and colic, cramps, nausea, vomiting, constipation, weight loss and decreased urination, deposition of blue lead-line on the gums), kidneys/urinary system (reversible/irreversible kidney damage) and endocrine system. Increased levels of lead result in increased brain damage, coma and death in extreme cases.

Lead (II) oxide: dog LDLo oral 1400mg/kg (1400mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1289, 1935.
rat LDLo intraperitoneal 430mg/kg (430mg/kg) BLOOD: OTHER CHANGES Industrial Medicine. Vol. 10, Pg. 15, 1941.

SECTION 12: Ecological information

Toxicity
Very toxic to aquatic life with long lasting effects.

Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
Data are not available.

Mobility in soil
Data are not available.

Results of PBT and vPvB assessment
Data are not available.

Endocrine disrupting properties
Data are not available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 2291

Class: 6.1
Packing Group: III
Proper Shipping Name: LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD (II) OXIDE)

Environmental Hazards: Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. The following applies to lead compounds in general: hazard for drinking water.

Hazchem emergency action code (EAC)
2Z

IMDG
UN Number: 2291
Class: 6.1
Packing Group: III
EMS Number:
Proper Shipping Name: LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD (II) OXIDE)

IATA
UN Number: 2291
Class: 6.1
Packing Group: III
Proper Shipping Name: LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD (II) OXIDE)

SECTION 15: Regulatory information

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

Australia SUSMP
Poison Schedule: S6

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.

Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)