Infosafe No™	1CH3P	Issue Date : June 2016	RE-ISSUED by CHEMSUPP

Product Name : **LEAD (IV) OXIDE**

Classified as hazardous

1. Identification

GHS Product Identifier	LEAD (IV) OXIDE
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia
Telephone/Fax Number	Tel: (08) 8440-2000 Fax: (08) 8440-2001
Recommended use of the chemical and restrictions on use	Oxidizing agent, electrodes in batteries, lead-acid storage batteries, curing agent for polysulfide elastomers, manufacture of rubber substitutes, manufacture of pigments, textiles (mordant, discharge in dyeing with indigo), matches, pyrotechny, explosives, analytical chemistry and laboratory reagent.

Other Names	**Name**	**Product Code**
	Lead peroxide	
	Lead dioxide	
	Lead oxide brown	
	Lead superoxide	
	LEAD (IV) OXIDE LR	LL022

Other Information

EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

Chem-Supply 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 Chem-Supply 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 Chem-Supply 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.

2. Hazard Identification

GHS classification of the substance/mixture

Hazardous to the Aquatic Environment - Acute Hazard: Category 1
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1
Acute Toxicity - Inhalation: Category 4
Oxidizing Solids: Category 3
Acute Toxicity - Oral: Category 4
Specific target organ toxicity - Repeated Exposure Category 2
Toxic to Reproduction: Category 1

Signal Word (s)

DANGER

Hazard Statement (s)

H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
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.

Pictogram (s)

Flame over circle, Health hazard, Exclamation mark, Environment

Precautionary statement – Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
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/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

Precautionary statement – Response	P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. Swallowed P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth. Inhaled P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P311 Call a POISON CENTER or doctor/physician. Health P308+P313 IF exposed or concerned: Get medical advice/attention. Fire P370+P378 In case of fire: Use flodding quantities of water, dry sand or alcohol resistant foam for extinction. P391 Collect spillage.
Precautionary statement – Storage	P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Chemical Characterization Solid

Ingredients

Name	CAS	Proportion	Hazard Symbol	Risk Phrase
Lead dioxide	1309-60-0	100 %	Xn	R20/22, R33

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Contaminated clothing must be laundered before re-use Seek medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Specific Methods	Small fire: USE FLOODING QUANTITIES OF WATER. Do not use dry chemicals, CO2 or foam. If safe to do so, move undamaged containers from fire area. Do not move cargo if cargo has been exposed to heat. Large fire: Flood fire area with water from a protected position. Cool containers with flooding quantities of water until well after fire is out - If impossible, withdraw from area and let fire burn. Avoid getting water inside containers: a violent reaction may occur. Dam fire control water for later disposal.
Specific hazards arising from the chemical	Will accelerate burning when involved in a fire. May explode from heating, shock, friction or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, clothing, etc). Fire may produce irritating, poisonous, and/or corrosive gases. Containers may explode when heated. Runoff may create fire or explosion hazard.
Hazchem Code	1X
Decomposition Temp.	290 °C.
Precautions in connection with Fire	Wear SCBA and chemical splash suit. Structural firefighter's uniform will provide limited protection.

6. Accidental release measures

Spills & Disposal	Do not contaminate. Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use water spray to knock down vapours or divert vapour clouds. Prevent entry into waterways, drains or confined areas. Prevent exposure to heat. Dry Spill Use clean non-sparking tools to transfer material to a clean, dry plastic container and cover loosely. Move container from spill area. Small Liquid Spill Use a non-combustible material like vermiculite, sand or earth to soak up the product and place in a loosely-covered container for later disposal. Large Liquid Spill SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
Personal Precautions	Evacuate the area of all non-essential personnel. Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)

7. Handling and storage

Precautions for Safe Handling	Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Avoid exposure - obtain special instructions before use. Wear suitable protective clothing.
Conditions for safe storage, including any incompatabilities	Store away from combustible materials. Keep container tightly closed and dry, away from direct sunlight. Store at room temperature (15 - 25 °C). Store away from foodstuffs.
Storage Regulations	Refer Australian Standard AS 4326-1995 'The storage and handling of oxidizing agents'.

8. Exposure controls/personal protection

Other Exposure Information	A time weighted average (TWA) has been established for Lead, inorganic dusts & fumes (as Pb) [7439-92-1] (Safe Work Australia) of 0.15 mg/m^3. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.
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.
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.
Eye 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.
Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Plastic or rubber gloves.
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.
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	Flame retardant protective clothing. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using. Wash hands, forearms, face and neck before exiting restricted area. All contaminated clothing should not be taken home at end of shift, but should remain at employee's place of work for cleaning.

9. Physical and chemical properties

Form	Solid
Appearance	Brown crystals or powder.

Odour	Odourless.
Decomposition Temperature	290 °C.
Melting Point	290 °C - decomposes
Solubility in Water	Insoluble.
Solubility in Organic Solvents	Insoluble in alcohol. Presumably soluble in acidic gastric juice.
Specific Gravity	9.375
Vapour Density (Air=1)	8.2
Volatile Component	0%
Flash Point	290 °C
Flammability	Not combustible but assists combustion of other substances.
Molecular Weight	239.19
Oxidising Properties	An oxidizing agent.
Other Information	Soluble in glacial acetic acid.

10. Stability and reactivity

Chemical Stability	Stable under ordinary conditions of use and storage.
Conditions to Avoid	Heat, shock, friction, incompatibles, combustible materials, reducing agents, strong oxidants.
Incompatible Materials	Combustible and organic materials, reducing material, aluminium carbide, barium sulfide, boron calcium sulfide, cesium, acetylene, carbide, chlorine trifluoride, hydrogen peroxide, hydrogen sulfide, hydroxylamine, molybdenum, performic acid, peroxyformic acid, phenyl hydrazine, phosphorus, phosphorus trichloride, sulfides, sulfur, sulfuryl chloride, sulfuric acid, hydrochloric acid, red phosphorous, tungsten, aluminium in powder form, metals in powder form, combustible substances, carbides, boron, alkali metals, semimetals, sulfur oxides, hydrides and zirconium.
Hazardous Decomposition Products	Decomposes to oxygen and lead oxide at 290C (554F), lead monoxide at higher temperatures.
Possibility of hazardous reactions	Reacts violently with combustible and reducing materials.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Toxicology Information	LD50 Intraperitoneal (guinea pig): 200 mg/kg (Spector).
Ingestion	Harmful if swallowed. 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. After a latency period of several hours, symptoms may include metallic taste, gastrointestinal irritation, nausea, vomiting, diarrhoea, abdominal pain and spasms, kidney damage, headache, palor, constipation, joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), 'lead line' on the gums, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock, coma and death in extreme cases. Many lead compounds can cause toxic effects in the blood-forming organs, kidneys, digestive and central nervous system. The synthesis of hemoglobin is inhibited and results in anaemia. If left untreated, neuromuscular dysfunction, possible paralysis, and encephalopathy can result. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death.
Inhalation	Harmful by inhalation. Evaporation at 20 °C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered. Irritating to the respiratory tract, lungs, bronchia and mucus membranes. May cause sore throat, coughing, headache and dizziness. Lead can be absorbed through the respiratory system. In cases of acute exposure, symptoms such as metallic taste, gastrointestinal irritation with nausea, vomiting and diarrhoea, muscle weakness, 'lead line' on the gums, definite loss of appetite, insomnia, dizziness, chest and abdominal pain and spasms, constipation, kidney damage and increased lead levels in blood and urine with shock, coma and death in extreme cases. Many lead compounds can cause toxic effects in the blood-forming organs,

	kidneys and central nervous system.
Skin	Irritating to skin. May cause redness, scaling, itching and pain upon brief exposure. May cause severe burns. Lead and lead compounds may be absorbed through the skin on prolonged exposure; the symptoms of lead poisoning described for ingestion exposure may occur.
Eye	Irritating to eyes. Irritation to the eyes will cause watering and redness. Absorption can occur through eye tissues but the more common hazards are local irritation or abrasion.
Carcinogenicity	Lead compounds, inorganic is evaluated in the IARC Monographs (Vol. 87; in preparation) as Group 2A: Probably carcinogenic to humans.
Reproductive Toxicity	Lead salts have been reported to cross the placenta and to induce embryo- and feto- mortality. Adverse effects of lead on human reproduction, embryonic and fetal development and postnatal (e.g., mental) development have been reported. May cause congenital malformation in the fetus. Known as a human reproductive toxicant.
Chronic Effects	Lead is a cumulative poison and exposure even to small amounts can raise the body's content to toxic levels. Repeated or prolonged exposure to the substance can produce damage to blood, kidneys, mucous membranes, the nervous and digestive systems. Over-exposure by skin contact may cause skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Other symptoms may include anaemia, central-nervous disorders, neuromuscular dysfunction, possible paralysis and encephalopathy, joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), kidney and liver damage, impaired eyesight, memory loss, plumbism which is characterized by lead (or blue) line in gum, metallic taste, headache, dizziness, abdominal pain, nausea, vomiting, diarrhoea, constipation, insomnia, restlessness, irritability, visual disturbances, hypertension and gray facial colour. High body levels produce increased cerebrospinal pressure, brain damage, stupor leading to coma and often death.
Mutagenicity	May cause adverse mutagenic or teratogenic effects.

12. Ecological information

Ecotoxicity	Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. Hazard for drinking water supplies.
Persistence and degradability	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Environmental Fate	For lead and inorganic lead compounds: When released into the soil, this material is not expected to leach into groundwater.
Bioaccumulative Potential	For lead and inorganic lead compounds: This material may bioaccumulate to some extent.
Biological Properties	The following applies to lead compounds in general: biological effects: toxic for aquatic organisms (calc. as free lead).
Acute Toxicity - Fish	The following applies to lead compounds in general: fish: lethal from 1.4 mg/l up; S. gairdnerii: LC50: 0.14 mg/l/96h ; L. idus LC50: 546 mg/l; fish test LC50: 236 mg/l.
Acute Toxicity - Daphnia	The following applies to lead compounds in general: D. magna LC50: 2.5 mg/l.
Acute Toxicity - Algae	The following applies to lead compounds in general: Sc. quadricauda toxic from 3.7 mg/l up; M. aeruginosa 0.45 mg/l.
Acute Toxicity - Bacteria	The following applies to lead compounds in general: Ps. putida toxic from 1.8 mg/l up.
Acute Toxicity - Other Organisms	The following applies to lead compounds in general: protozoa: E. sulcatum toxic from 0.02 mg/l up; U. parduczi toxic from 0.07 mg/l up.

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information	Dangerous Goods of Class 5.1 Oxidising Agents are incompatible in a placard load with any of the following: - Class 1, Class 2.1, Class 2.3, Class 3, Class 4, Class 5.2, Class 7, Class 8, Fire risk substances and combustible liquids.
U.N. Number	1872
UN proper shipping name	LEAD DIOXIDE
Transport hazard class(es)	5.1

Classified as hazardous

Hazchem Code	1X
Packaging Method	3.8.5.1
Packing Group	III
EPG Number	5B2
IERG Number	31

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule	S6

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons No. 6', Commonwealth of Australia, February 2015. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
Empirical Formula & Structural Formula	PbO_2

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