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Safety Data Sheet

+1. Chemical product and company identification

Product name : Lead(Ⅱ) oxide

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	24064
Recommended use	:	For research use only
Restrictions on use	:	Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Health hazards	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1A
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system, kidney)
	Specific target organ toxicity (repeated exposure)	Category 1 (blood, nervous system, cardiovascular, kidney)

Hazard pictograms

Signal word : Danger

Hazard statements :
Suspected of causing genetic defects
Suspected of causing cancer
May damage fertility or the unborn child
Causes damage to organs (central nervous system, kidney)
Causes damage to organs (blood, nervous system, cardiovascular, kidney) through prolonged or repeated exposure

Precautionary statements

Prevention :
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

Response :
IF exposed or concerned: Call a POISON CENTER or doctor.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.

Storage	:	Store locked up.
Disposal	:	Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture	:	Substance
Synonyms	:	Lead monoxide (yellow), Litharge

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Lead(Ⅱ) oxide	≥ 98.5	PbO	Listed	215-267-0	1317-36-8

4. First aid measures

First aid measures

First-aid measures after inhalation	:	Remove the victim to fresh air, and make him blow his nose and gargle.
First-aid measures after skin contact	:	Wash the affected areas under running water.
First-aid measures after eye contact	:	Wash the affected areas under running water.
First-aid measures after ingestion	:	Give the victim water or salt water and make him vomit. Get medical attention.
Personal Protection in First Aid and Measures	:	Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects

Symptoms/effects	:	Inhalation causes pain of mouth and throat, salvation, nausea, and chest pain.

5. Fire fighting measures

Suitable extinguishing media	:	This product is noncombustible.
Unsuitable extinguishing media	:	None
Firefighting instructions	:	Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
Personal protection (Emergency response)	:	Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures	:	Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Environmental precautions

Environmental precautions	:	Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up

For containment	:	Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

7. Handling and storage

Handling

Technical measures	:	Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.
Precautions for safe handling	:	Avoid formation of dust and aerosols.

Storage

Storage conditions	:	Store in a dark, cool place and tightly closed.
Material used in packaging/containers	:	Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	0.05 mg/m³ (as Pb)

Appropriate engineering controls	:	Install a local ventilation system in case of dusty condition.

Protective equipment

Respiratory protection	:	If necessary, wear dust mask
Hand protection	:	Impervious protective gloves
Eye protection	:	Safety goggles
Skin and body protection	:	Protective clothing, protective boots

9. Physical and chemical properties

Physical state	:	Solid
Color	:	Yellow - reddish yellow
Odor	:	Odorless
pH	:	It becomes lead hydroxide in an aqueous solution and becomes slightly alkaline.
Melting point	:	886 ° C
Freezing point	:	No data available
Boiling point	:	1480 ° C
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability	:	Non flammable.
Vapor pressure	:	No data available
Relative density	:	No data available
Density	:	9.53 g/cm³
Relative gas density	:	No data available
Solubility	:	Water: Slightly soluble. Soluble in acids and alkalis.
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available

Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Reaction with chlorine or bromine produces lead chloride or lead oxyhalogenate. Heating with sulfur produces lead sulfide and sulfur dioxide. When heated with hydrogen or carbon, it is reduced to metallic lead.
Chemical stability	:	When a mixture of metal powder and metal acetylene is heated, it may explode.
Possibility of hazardous reactions	:	Stable under normal conditions of use.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Reducing substances, oxidizing substances.
Hazardous decomposition products	:	fume.

11. Toxicological information

Acute toxicity (oral)	:	No classification rat LD50>2000mg/kg
Acute toxicity (dermal)	:	No classification rabbit LD50>2000mg/kg
Acute toxicity (inhalation)	:	No classification (gas) No classification (vapor) No classification (dust, mist) rat LC50>5.05mg/L/4h
Skin corrosion/irritation	:	No classification It is described that in a skin irritation test (OECD TG 404 compliant) with rabbits, the irritation score was 0 in all three animals, and no irritation was observed as the result of semi-occlusive application of 0.5 g of this substance, therefore, it was classified as "Not classified."
Serious eye damage/irritation	:	No classification Based on a report that in an eye irritation test (OECD TG 405 compliant) with rabbits, as a result of application of 0.1g of this substance for 72 hours, slight redness in one animal was produced 1 hour after instillation, but after 24 and 72 hours, neither of the three test animals showed irritation, and it was not irritating. Therefore, it was classified as "Not classified."
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible There is a report that in a skin sensitization test (OECD TG 406 compliant) with guinea pigs, there was no skin reaction 24 hours and 48 hours after a challenge to 10 of a sensitized group, the positive reaction rate was 0%, and this substance is not a sensitizer. However, because other information on animals or humans could not be obtained, it was classified as "Classification not possible."

Germ cell mutagenicity	:	Suspected of causing genetic defects Though there is no information on this substance, it was classified based on the information on inorganic lead compounds. As for in vivo, chromosomal aberration tests with rat or mouse bone marrow cells and a micronucleus test with rat bone marrow cells were positive, and there were positive results in sister chromatid exchange tests with mouse bone marrow cells, but negative results were also found. As for in vitro, there were positive results in bacterial reverse mutation tests, and gene mutation tests and micronucleus tests with mammalian cultured cells, but negative results were also seen in bacterial reverse mutation tests, and gene mutation tests, micronucleus tests, and sister chromatid exchange tests with mammalian cultured cells. From the above, it was classified into category 2.
Carcinogenicity	:	Suspected of causing cancer Japan Society for Occupational Health classifies lead and lead compounds as the group 2B(probably carcinogenic to humans with less sufficient evidence).
Reproductive toxicity	:	May damage fertility or the unborn child There are ample evidence to suggest that lead and lead compounds cause reproductive and developmental toxicity in humans. Regarding effects on males exposed to lead, asthenospermia, decreased sperm count, and increased incidence of abnormal spermatozoa were observed. Regarding effects on females, high incidence of ovulation abnormalities and relationship between urinary ALA concentration and cycle of amenorrhea were noted. Based on above epidemiological study results, Japan Society for Occupational Health classifies lead and lead compounds as reproductive toxicity group 1. Thus, it was classified into category 1A.
STOT-single exposure	:	Causes damage to organs (central nervous system, kidney) This substance is an inorganic lead compound. There is no information on single exposure of this substance. However, the toxicity information of lead would be considered to be a reference. For humans, as symptoms of acute toxicity of lead, apathy, restlessness, irritability, inattentiveness, headaches, muscular tremor, hallucinations, loss of memory, and kidney damage are reported. Therefore, it was classified into category 1 (central nervous system, kidney).
STOT-repeated exposure	:	Causes damage to organs (blood, nervous system, cardiovascular, kidney) through prolonged or repeated exposure As for humans, there is no information on this substance, but it is considered that it can be classified based on effects of inorganic lead compounds. The most sensitive target of lead toxicity is the developing nervous system, haemal system, cardiovascular system and kidney. As for the effects on the nervous system, symptoms develop following prolonged exposure and include dullness, irritability, poor attention span, epigastric pain, constipation, vomiting, convulsions, coma, and death. As for effects on the haemal system, lead is known to change the haemal system by inhibiting the activity of some enzymes participating in biosynthesis of heme. As for effects on the cardiovascular system, studies on lead workers suggest that long-term exposure to lead may be associated with increased mortality due to cerebrovascular disease. As for effects on the kidney, there is a description that lead also affects kidney function, and changes a glomerular filtration rate. From the above, this substance was classified in Category 1 (blood, nervous system, cardiovascular, kidney).

Aspiration hazard : Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute : Classification not possible
Aquatic chronic : Classification not possible

Persistence and degradability

No additional information available

Bioaccumulative potential

Low bioconcentration
BCF : 9.1-24 (400μg/L), ≤43 (40.0μg/L)

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal considerations

Ecological waste information : Disposal should be made by one of following methods. Or entrust approved waste disposal companies with the disposal.

Solidification method :
Solidify with cement and bury in a landfill site approved for hazardous waste disposal after confirming that dissolving quantity is under criteria.

Roasting method :
In case of a large amount of the chemical, recover metal lead by roast reduction method.

<Note>
＊Dissolution test and dissolution standard for the disposal are in accordance with provisions under related laws.
＊In case of disposal by roasting method, it is desirable to entrust to disposal companies.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Packing group (IMDG) : Not applicable
Transport hazard class(es) (IMDG) : Not applicable

Air transport(IATA)

UN-No. (IATA) : Not applicable
Proper Shipping Name (IATA) : Not applicable

Packing group (IATA)	:	Not applicable
Transport hazard class(es) (IATA)	:	Not applicable
Marine pollutant	:	Not applicable

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Handbook of dangeroous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001) .
Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000) .
Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.