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1- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name (trade name) Lead Oxide.
Supplier product code 4010, 4020, 4030, 4040.
Company DUROX PRODUTOS QUÍMICOS LTDA.
Address Av. Brasil, 4633
Caixa Postal 69 CEP 13.500-970 Rio Claro SP
Telephone (19) 3522-2239 / 3522-2259 / 5561-2125 / 5542-3344
Emergency phone SUATRANS - 0800-707-7022
Fax (19) 3536-1174 / 5542-3015
E-mail durox@durox.com.br

2- HAZARDS IDENTIFICATION

Most important hazards Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to blood system, bone marrow, peripheral and central nervous system and kidneys through prolonged or repeated exposure.

Product effects

Adverse effects on human health Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to blood system, bone marrow, peripheral and central nervous system and kidneys. May cause gastrointestinal irritation and respiratory tract.

Environmental effects The product does not present hazard for the environment.

Physical and chemical hazards Not classified as physical hazards.

Specific hazards No specific hazards are expected for the product.

Most important symptoms May cause nausea, vomiting, metallic taste, loss of appetite, weight loss, colic and muscle cramps. Cough and sore throat.

Hazard classification Reproductive cell mutagenicity – Category 2
Carcinogenicity – Category 1B
Toxic to reproduction – Category 1A
Specific target organ toxicity – repeated exposure – Category 1.


Classification system adopted Adoption of Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations.

Hazard classification Health: 0
Flammability: 1
Instability: 0
Specific: -

Classification system adopted National Fire Protection Association: NFPA 704.

Outline of an anticipated emergency SOLID HAZARDOUS TO THE HUMAN HEALTH.

Label elements

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Pictograms

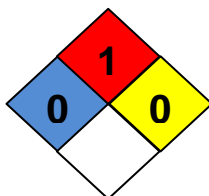


Signal word DANGER

Hazard statement H341 Suspected of causing genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H372 Causes damage to blood system, bone marrow, peripheral and central nervous system and kidneys through prolonged or repeated exposure.

Precautionary statement P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container to in accordance with local regulation.

Symbol



3- COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE

Chemical or common name Lead Oxide (concentration ranging from 65% to 85%).

Synonyms Litharge, Lead Oxide, Massicot, Lead Monoxide, Lead Oxide II, Oxide Plumboso.


CAS number 1317-36-8

Impurities that contribute to the hazard classification (%m) Pb Metal - CAS 7439-92-1 with concentrations ranging from 15% to 35%.

4- FISRD-AID MEASURES

First-aid measures

Inhalation Remove victim to fresh air and keep at rest. Monitor respiratory function. If

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victim is breathing with difficulty, give oxygen. If necessary, give artificial respiration. Wash the nose and lips. Seek medical attention. Take this SDS.

Skin contact Remove contaminated clothing and shoes. Wash affected area with water, for at least 15 minutes. Wash contaminated clothing and shoes before reuse. Seek medical attention. Take this SDS.

Eye contact Wash eyes immediately with running water for 15 minutes, keeping the eyelids open. Remove contact lenses if present and easily removable. Seek medical attention. Take this SDS.

Ingestion Rinse the victim's mouth with water. Seek medical attention. Dose the lead in the blood after 14 hours. Induce vomiting in conscious person only. Take this SDS.

Actions to be avoided Vomiting induction. Provide something orally to an unconscious person.

Protection of fist-aiders Avoid contact with the product when helping the victim. Keep the victim warmed and at rest.

Notes to an attending physician Avoid contact with the product to help the victim. Keep victim warm and at rest. Symptomatic treatment should understand, above all, supportive measures such as correction of electrolyte disturbances, metabolic, and respiratory care.

5- FIRE-FIGHTING MEASURES

Suitable extinguishing media Product not flammable, not explosive, not fuel. Compatible with foam, dry chemical or water spray.

Unsuitable extinguishing media Halogenated products.

Specific hazards arising from the chemical product The 886 ° C the product melts and 1472 °C decomposes with evolution of toxic gases and Lead / Lead Oxide.

Specific extinguishing methods Containers and tanks involved in the fire should be cooled with water jets.

Precautions for fire-fighters Respiratory protective equipment type (SCBA) with positive pressure and full protective clothing. Avoid inhalation of toxic fumes.

6- ACCIDENTAL REALEASE MEASURES

Personal precautions

Removal of ignition sources Eliminate preventively all the ignition sources around the area.


Dust control Avoid dust formation, but not wet with water or other solvent to avoid or prevent unnecessary leakage of the product to the environment. So the best way would be to use a form of mechanical protection against wind and weather, and any material that comes into contact with the product should be ready just like this.

Prevention of inhalation and contact with skin, eyes and mucous membranes Do not touch damaged containers or spilled material without the use of appropriate clothing. Manipulate with protective facial mask semi with mech filter class P2. Should use latex gloves or PVC. Avoid inhalation, contact with eyes and skin. Use personal protective equipment as described on section 8.

Environmental protection Do not let this chemical enter the environment (soil, waterways and groundwater).

Emergency procedures and alarm systems It is recommended the installation of fire alarm system and leak detection in storage and handling sites.

Methods and materials for cleaning up Isolate and ventilate the area. Remove sources of ignition preventively. Prevent sparks or flames. Do not smoke. Do not touch damaged

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containers or spilled material without the use of appropriate protective clothing. Stop leak if this can be done without risk. Remove the product using vacuum systems or other method that does not generate dust. Place collected material into suitable containers and remove them to safe place.

Secondary disaster prevention Do not dispose of directly into the environment or the sewer system. The dilution water from the fire fighting can cause pollution.

Differences in the action of large and small leaks There is no distinction between the actions of large and small leaks for this product.

7- HANDLING AND STORAGE

Technical measures for handling

Prevention of exposure of the handler Handle in a ventilated area or general ventilation / exhaust place. Avoid dust formation. Adopt measures for exposure control and personal protection detail in Section 8. Open / handling containers, even empty, with caution.

Prevention of fire and explosion Eliminate preventively all the ignition sources. Do not smoke.

Precautions for safe handling Avoid contact with skin, eyes and clothing. Avoid breathing dust from product. Use personal protective equipment as indicated in Section 8.

Hygiene measures

Suitable Wash hands and face thoroughly after handling and before eating, drinking, smoking or using the toilet. Contaminated clothing should be changed and washed before reuse. Adequately train the workers and people handling the product.

Unsuitable Do not eat, drink or smoke when using this product.

Technical measures of storage

Conditions for safe storage Keep the product in the original package in a cool, dry, protected from direct sunlight and fire-proof. Keep container tightly closed, isolated and away from acids foods or beverages.

Conditions that must be avoided High temperatures. Sources of ignition. Contact with incompatible materials.

Packaging materials

Recommended Original packaging. Do not re-pack the product.

Unsuitable Any other material or medium that expose the product.

8- EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific control parameters

Occupational exposure limits - Lead:
PEL-TWA (OSHA, 2010) - 0,050 mg/m³.
TLV-TWA (ACGIH, 2010) - 0,05 mg/m³.
REL-TWA (NIOSH, 2010) - 0,050 mg/m³.
LT (NR-15) - 0,1 mg/m³.

Biological determinants - Lead:
ACGIH, 2010: Lead in blood; BEI = 30 µg/100ml.
NR-7: Inorganic lead in blood; IBMP = 60 µg/100 ml.
Delta aminolevulinic acid in urine; IBMP = 10mg/g creatinina.

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Zincoprotoporfirina in blood; IBMP = 100 µg/100 ml.

Other limits and values - Lead:

IDLH (NIOSHI, 2010) - 100 mg/m³.

Engineering controls measures

Provide mechanical ventilation and exhaust system directly to the outside world. It is recommended that you make available emergency shower and eyewash in work area. The engineering control measures are most effective for reducing exposure to the product.

Appropriate personal protective equipment

Respiratory protection Use dust mask with mech filter class P2.

Hand protection PVC protection gloves.

Eye protection Use protective goggles or face mask.

Skin protection Closed shoes and clothing to protect the security of the whole body to avoid contact with the product. Systematic and frequent cleaning with water. Keep work clothes separated.

Special precautions Avoid wearing contact lenses while handling this product.

9- PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, form and color) Solid, amorphous powder, brown.

Odor Inodore.

pH Strongly basic.

Melting point/freezing point 886°C.

Boiling point, initial boiling point and boiling range Decomposes at 1472°C.

Flash point Not applicable.

Upper/lower flammability or explosive limits Not available.

Vapor pressure 1, 77 mm Hg at 1000°C (Pb).

Vapor density Not available.

Density/relative density 9,1-10,1 g/cm³ at 20°C.

Solubility (ies) In water at 20°C: 13 mg / l.

Soluble in acetic acid, nitric acid with H₂O₂, hot alkaline solutions.

n-octanol/water partition coefficient Log Kow: 0,73 (estimated).

Auto-ignition temperature Not available.

Decomposition temperature Not available.

10- STABILITY AND REACTIVITY


Chemical stability Stable under normal handling and storage.

Hazardous reactions Does not undergo polymerization. Not known hazardous reactions.

Conditions to avoid Contact with incompatible materials and high temperatures. Any operation that produces dust or fumes without adequate ventilation.

Incompatible materials Acid.

Hazardous decomposition products After 1472°C decomposes with evolution of toxic gases and products of

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Lead / Lead Oxide.

11- TOXICOLOGICAL INFORMATION


Acute toxicity	May cause gastrointestinal irritation with nausea, vomiting, metallic taste, loss of appetite, weight loss, colic and muscle cramps. May cause respiratory tract irritation with cough and sore throat.
Skin irritation/corrosion	Do not expected to present danger of corrosion or skin irritation.
Eye damage/irritation	Do not expected to present danger of serious eye damage or irritation.
Respiratory or skin sensitization	There aren't expected respiratory or skin sensitizing effects.
Reproductive cell mutagenicity	Suspected of causing genetic defects. There are indications of chromosomal aberrations and micronucleus.
Carcinogenicity	May cause cancer. Studies show that lead can cause lung damage, brain, stomach and kidneys. Classified as probably carcinogenic to humans (IARC group 2A, 2010).
Reproductive toxicity	May damage fertility or the fetus. Animal studies showed teratogenic effects in males and females. We observed decreased fertility and can damage the developing fetus and testicles.
Specific target organ toxicity – single exposure	Do not expected to present danger to the target organ toxicity after single exposure specific.
Specific target organ toxicity – repeated exposure	The repeated or prolonged exposure may cause effects on the blood, kidneys, central and peripheral nervous system, cardiovascular system and immune system. Causes anemia, encephalopathy, peripheral nerve disease, kidney failure and abdominal cramps.
Aspiration hazard	Do not expected to present aspiration hazard.
Toxicokinetics, metabolism and distribution	There aren't known the product's toxicokinetics, metabolism and distribution.
Interactions with other products	There aren't known substances that interact with this product.

12- ECOLOGICAL INFORMATION

Ecotoxicity	It is expected that the product presents no risk to the environment.
Persistence and degradability	It's expected low degradability and high persistence because it is insoluble in water.
Bioaccumulative potential	Bioaccumulation may occur. - Information relating to: <u>Lead Oxide</u> BCF: 0,73 (estimated). Log kow: 3, 162 (estimated).
Mobility in soil	Low mobility in soil.
Additional environmental results	There aren't known any other environmental data.

13- DISPOSAL CONSIDERATIONS

Product Must be disposed as hazardous waste according to local regulations. The treatment and disposal should be evaluated specifically for each product. Federal, state and local laws should be consulted.

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- Product waste** Keep the remaining product in their original packaging and properly sealed. Disposal should be made as provided for the product.
- Contaminated packaging** Do not reuse empty packaging. They may contain remnants of the product and must be closed and sent for proper disposal as required for the product.

14- TRANSPORT INFORMATION

International regulations

L a n d UN - "United Nations"

Recommendations on the TRANSPORT OF DANGEROUS GOODS.
Model Regulations

UN number 2291

Proper shipping name LEAD COMPOUND, SOLUBLE, N.O.S.

Class or division 6.1

Subsidiary risk Toxic substances.

Packing group III

S e a IMO – "International Maritime Organization"

International Maritime Dangerous Goods Code (IMDG Code).

UN number 2291

Proper shipping name LEAD COMPOUND, SOLUBLE, N.O.S.

Class or division 6.1

Subsidiary risk Toxic substances.

Packing group III

Marine pollutant Y

EmS F-A, S-A

Transport in bulk according to MARPOL Consult regulations:

73/78, Annex II, and the IBC Code:

- International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006.

- International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

A i r IATA - "International Air Transport Association"

Dangerous Goods Regulation (DGR).


UN number 2291

Proper shipping name LEAD COMPOUND, SOLUBLE, N.O.S.

Class or division 6.1

Subsidiary risk Toxic substances.

Packing group III

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15- REGULATORY INFORMATION

Chemical product specific regulations International Labor Organization C170 Chemicals Convention, from June 25th, 1990: Occupational Safety and Health – Toxic Substances and Agents.

International Organization for Standardization - ISO 11014:2009.

Globally Harmonized System of Classification and Labelling of Chemicals (GHS). 3. rev. ed. New York : United Nations, 2009

16- OTHER INFORMATION

This information had been based on the current knowledge of the product and intended to describe safety, health and environmental hazards.

It is advised that the handling of any chemical substance requires the previous knowledge of its hazards by the user. It is responsibility of the product user enterprise to promote the training of its employees and contractors about the possible risks arising from the product.

SDS reviewed by InterTox: April 2011 - <http://www.intertox.com.br>

Legends e abbreviations

ACGIH - *American Conference of Governmental Industrial Hygienists*

BEI - *Biological Exposure Indices*

BCF - *Bioconcentration Factor*

CAS - *Chemical Abstracts Service*

IBMP - Índice Biológico Máximo Permitido

LT - Limite de Tolerância

NIOSH - *National Institute for Occupational Safety and Health*

NR - Norma Regulamentadora

OSHA - *Occupational Safety & Health Administration*

PEL - *Permissible Exposure Limit*

REL - *Recommended Exposure Limit*

TLV - *Threshold Limit Value*

TWA - *Time Weighted Average*

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HSDB - HAZARDOUS SUBSTANCES DATA BANK. Available at: <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>>. Access in: abr. 2011.

IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at: <<http://monographs.iarc.fr/ENG/Classification/index.php>>. Access in: abr. 2011.

IUCLID - INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.l.]: European chemical Bureau.

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