MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/23/2013 Version 1.2

SECTION 1.Identification

Product identifier

Product number	107401
Product name	Lead(II) oxide for analysis EMSURE®

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

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 4, Inhalation, H332
Reproductive toxicity, Category 1A, H360FD
Specific target organ systemic toxicity - repeated exposure, Category 2, Central nervous system, Kidney, Blood, Immune system, H373
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H360FD May damage fertility. May damage the unborn child.

H302 + H332 Harmful if swallowed or if inhaled.
H373 May cause damage to organs (Central nervous system, Kidney, Blood, Immune system) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements
P201 Obtain special instructions before use.
P273 Avoid release to the environment.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

OSHA Hazards
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	PbO	OPb (Hill)
CAS-No.	1317-36-8	
Molar mass	223.19 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.
lead(II) oxide (>= 90 % - <= 100 %)
1317-36-8

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

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, metallic taste, nausea, vomiting, and colics occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness ("drop-wrist"), anemia, and central-nervous disorders. Women of child-bearing age should not be exposed to the substance over longer periods of time (observe critical threshold).

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.
Has a fire-promoting effect due to release of oxygen.
Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage temperature: no restrictions.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
lead(II) oxide 1317-36-8			
ACGIH	Time Weighted Average (TWA):	0.05 mg/m³	Expressed as: as Pb
NIOSH/GUIDE	Recommended exposure limit (REL):	0.050 mg/m³	Expressed as: as Pb
Z1A	Time Weighted Average (TWA):	0.05 mg/m³	Expressed as: as Pb

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance/mixture.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	solid

Color	yellow
Odor	odorless
Odor Threshold	No information available.
pH	8 - 9 at 100 g/l 68 °F (20 °C) (slurry)
Melting point	888 °C
Boiling point/boiling range	2,678 °F (1,470 °C)
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	9.53 g/cm³ at 68 °F (20 °C)
Water solubility	0.017 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	not applicable
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	not combustible
Bulk density	ca.3,500 - 3,700 kg/m³

SECTION 10. Stability and reactivity

Reactivity
See below

Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions
Risk of explosion with:

Aluminum, Powdered metals, performic acid, perchloric acid, glycerol

Violent reactions possible with:

carbides, Sulfur oxides, hydrogen peroxide, halogens, alkenes

Risk of ignition or formation of inflammable gases or vapors with:

Boron, Alkali metals, hydrides, silanes, vegetable/animal oils, Fluorine

Conditions to avoid
no information available

Incompatible materials
no information available

Hazardous decomposition products
no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact, Ingestion

Acute oral toxicity
LD50 rat: > 10,000 mg/kg (IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

absorption

Acute inhalation toxicity
absorption

Acute toxicity estimate: 1.6 mg/l
Expert judgment

Sensitization
Human experience
Result: negative
(IUCLID)

CMR effects
Teratogenicity:
May damage the unborn child. Positive evidence from human epidemiological studies.
Reproductive toxicity:
Suspected of damaging fertility.

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
Target Organs: Central nervous system, Kidney, Blood, Immune system
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 2A: Probably carcinogenic to humans	
	lead(II) oxide	1317-36-8
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.	
NTP	Anticipated carcinogen.	
	lead(II) oxide	1317-36-8
ACGIH	Confirmed animal carcinogen with unknown relevance to humans.	
	lead(II) oxide	1317-36-8

Further information
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, metallic taste, nausea, vomiting, and colics occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness ("drop-wrist"), anemia, and central-nervous disorders. Women of child-bearing age should not be exposed to the substance over longer periods of time (observe critical threshold).
Danger of cumulative effects.
Further data:
This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Pimephales promelas (fathead minnow): 0.3 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 0.13 mg/l; 48 h (ECOTOX Database)

Persistence and degradability

Biodegradability

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

Bioaccumulative potential

Partition coefficient: n-octanol/water
not applicable

Mobility in soil

No information available.

Additional ecological information
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 2291
Proper shipping name	LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD(2)-OXIDE)
Class	6.1
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 2291
Proper shipping name	LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD(2)-OXIDE)
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 2291
Proper shipping name	LEAD COMPOUND, SOLUBLE, N.O.S. (LEAD(2)-OXIDE)
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Reproductive hazard
Carcinogen
Teratogen

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Chronic Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

lead(II) oxide	1317-36-8

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients
lead(II) oxide

Pennsylvania Right To Know

Ingredients
lead(II) oxide

New Jersey Right To Know

Ingredients
lead(II) oxide

California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.
Ingredients

lead(II) oxide

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

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

H302	Harmful if swallowed.
H332	Harmful if inhaled.
H360FD	May damage fertility. May damage 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.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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