1 Identification

· Product identifier
  · Trade name: Lead Hydroxide, Basic Purified
  · Article number: 205732
  · CAS Number: 19783-14-3
  · EC number: 243-310-3
  · Molecular Formula Pb (OH)2
  · Molecular Weight 241.22 g/mol
  · Application of the substance / the mixture For Research Use Only

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: MP Biomedicals, LLC
    29525 Fountain Parkway
    Solon, OH 44139
    United States
    www.mpbio.com
  · Information department: Quality Control Department
  · Emergency telephone number: CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS06 Skull and crossbones
  Acute Tox. 3 H301 Toxic if swallowed.
  GHS08 Health hazard
  Carc. 2 H351 Suspected of causing cancer.
  Repr. 1A H360 May damage fertility or the unborn child.
  STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
  GHS07
  Acute Tox. 4 H312 Harmful in contact with skin.
  Acute Tox. 4 H332 Harmful if inhaled.

· Label elements
  · GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms
    GHS06
    GHS08

· Signal word Danger
Trade name: Lead Hydroxide, Basic Purified

- **Hazard statements**
  Toxic if swallowed.
  Harmful in contact with skin or if inhaled.
  Suspected of causing cancer.
  May damage fertility or the unborn child.
  May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  Do not breathe dust/fume/gas/mist/vapors/spray.
  Wear protective gloves / protective clothing.
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  Use only outdoors or in a well-ventilated area.
  Obtain special instructions before use.
  Do not handle until all safety precautions have been read and understood.
  **IF SWALLOWED:** Immediately call a POISON CENTER/doctor.
  Specific treatment (see on this label).
  **IF INHALED:** Remove person to fresh air and keep comfortable for breathing.
  Call a POISON CENTER/doctor if you feel unwell.
  **IF exposed or concerned:** Get medical advice/attention.
  **IF ON SKIN:** Wash with plenty of water.
  Take off contaminated clothing and wash it before reuse.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = *3
    - Fire = 0
    - Reactivity = 0

- **Other hazards**
  - **Results of PBT and vPvB assessment**
    - PBT: Not applicable.
    - vPvB: Not applicable.

### Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
  - 19783-14-3 Lead Hydroxide, Basic Purified
- **Identification number(s)**
  - EC number: 243-310-3
4 First-aid measures

- Description of first aid measures
- General information:
  Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area.
  In case of irregular breathing or respiratory arrest provide artificial respiration.
- After inhalation:
  Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
  If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.
- After skin contact: Wash off with soap and plenty of water. Consult a Doctor.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Do not induce vomiting; immediately call for medical help.

Information for doctor:

- Most important symptoms and effects, both acute and delayed
  No further relevant information available.
- Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
- Advice for firefighters
  - Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Pick up mechanically, dispose contaminated material as waste according to Section 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- Handling:
- Precautions for safe handling
  Thorough dedusting.
  Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
  Open and handle receptacle with care.
- Information about protection against explosions and fires: Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
- Storage: 15-30 °C
- Requirements to be met by storerooms and receptacles: No special requirements.
8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see Section 7.

- Control parameters

- Components with limit values that require monitoring at the workplace: Not required.

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls

- Personal protective equipment:

- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the eyes and skin.

- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:

  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- Eye protection:
  Safety glasses

  **Tightly sealed goggles**

9 Physical and chemical properties

- Information on basic physical and chemical properties

- General Information

- Appearance:
  Form: Powder
  Color: White
  Odor: Indeterminate
Trade name: Lead Hydroxide, Basic Purified

- Odor threshold: Not determined.
- pH-value: Not applicable.
- Change in condition
  Boiling point/Boiling range: Undetermined.
- Flash point: Not applicable.
- Flammability (solid, gaseous): Product is not flammable.
- Ignition temperature:
  Decomposition temperature: Not determined.
- Auto igniting: Not determined.
- Danger of explosion: See section 10
- Explosion limits:
  Lower: Not Applicable
  Upper: Not Applicable
- Vapor pressure: Not applicable.
- Density: Not Applicable
- Relative density Not determined.
- Vapor density Not applicable.
- Evaporation rate Not applicable.
- Solubility in / Miscibility with
  Water: Not determined.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  Dynamic: Not applicable.
  Kinematic: Not applicable.
- Other information No further relevant information available.

10 Stability and reactivity
- Reactivity No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information
- Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
  on the skin: No irritant effect.
  on the eye: Irritant and potentially harmful
- Sensitization: No sensitizing effects known.
43.0.21

· Additionally toxicological information:

· Carcinogenic categories
· IARC (International Agency for Research on Cancer) Substance is not listed.
· NTP (National Toxicology Program) Substance is not listed.
· OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

12 Ecological information

· Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability: No further relevant information available.
· Behavior in environmental systems:
· Bioaccumulative potential: No further relevant information available.
· Mobility in soil: No further relevant information available.
· Additional ecological information:
· General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.
· Other adverse effects: No further relevant information available.

13 Disposal considerations

· Waste treatment methods
· Recommendation:
Can not be disposed together with household garbage. Do not allow product to reach sewage system.
· Uncleaned packagings:
· Recommendation: Discard must be made according to official regulations.

14 Transport information

· UN-Number
· DOT, ADR, IMDG, IATA UN2291
· UN proper shipping name
· DOT Lead compounds, soluble, n.o.s.
· ADR 2291 Lead compounds, soluble, n.o.s. (Lead Hydroxide, Basic Purified), ENVIRONMENTALLY HAZARDOUS
· IMDG LEAD COMPOUND, SOLUBLE, N.O.S. (Lead Hydroxide, Basic Purified), MARINE POLLUTANT
· IATA LEAD COMPOUND, SOLUBLE, N.O.S.
<table>
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<th><strong>Trade name:</strong> Lead Hydroxide, Basic Purified</th>
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| **Transport hazard class(es)** | |
| DOT | |
| - Class | 6.1 Toxic substances |
| - Label | 6.1 |

| **ADR, IMDG** | |
| - Class | 6.1 Toxic substances |
| - Label | 6.1 |

| **IATA** | |
| - Class | 6.1 Toxic substances |
| - Label | 6.1 |

| **Packing group** | |
| DOT, ADR, IMDG, IATA | III |

| **Environmental hazards:** | Environmentally hazardous substance, solid; Marine Pollutant |
| Marine pollutant: | Yes (DOT) |
| Special marking (ADR): | Symbol (fish and tree) |

| **Special precautions for user** | Warning: Toxic substances |
| Danger code (Kemler): | 60 |
| EMS Number: | F-A,S-A |
| Segregation groups | Heavy metals and their salts (including their organometallic compounds), lead and its compounds |
| Stowage Category | A |

| **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable. |

| **Transport/Additional information:** | |
| DOT | |
| - Quantity limitations | On passenger aircraft/rail: 100 kg |
| On cargo aircraft only: 200 kg |
| Remarks: | Special marking with the symbol (fish and tree). |

| **ADR** | |
| Exception quantities (EQ) | Code: E1 |
| Maximum net quantity per inner packaging: 30 g |
| Maximum net quantity per outer packaging: 1000 g |
Trade name: Lead Hydroxide, Basic Purified

- IMDG
- Limited quantities (LQ): 5 kg
- Exempted quantities (EQ): Code: E1
  Maximum net quantity per inner packaging: 30 g
  Maximum net quantity per outer packaging: 1000 g
- UN "Model Regulation": UN 2291 LEAD COMPOUNDS, SOLUBLE, N.O.S. (LEAD HYDROXIDE, BASIC PURIFIED), 6.1, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
  - Section 355 (extremely hazardous substances): Substance is not listed.
  - Section 313 (Specific toxic chemical listings): Substance is not listed.
  - TSCA (Toxic Substances Control Act): Substance is not listed.
  - Proposition 65
  - Chemicals known to cause cancer: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for females: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for males: Substance is not listed.
  - Chemicals known to cause developmental toxicity: Substance is not listed.
- Carcinogenic categories
  - EPA (Environmental Protection Agency) Substance is not listed.
  - TLV (Threshold Limit Value established by ACGIH) Substance is not listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
  - GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

  ![GHS06](GHS06.png) ![GHS08](GHS08.png)

- Signal word Danger

  Hazard statements
  - Toxic if swallowed.
  - Harmful in contact with skin or if inhaled.
  - Suspected of causing cancer.
  - May damage fertility or the unborn child.
  - May cause damage to organs through prolonged or repeated exposure.
- Precautionary statements
  - Do not breathe dust/fume/gas/mist/vapors/spray.
  - Wear protective gloves / protective clothing.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Use only outdoors or in a well-ventilated area.
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - IF SWALLOWED: Immediately call a POISON CENTER/doctor.
  - Specific treatment (see on this label).
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

(Contd. on page 9)
Trade name: Lead Hydroxide, Basic Purified

Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
Rinse mouth.
IF ON SKIN: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Quality Control Dept.
- Date of preparation / last revision: 11/30/2016 / -
- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Acute Tox. 3: Acute toxicity – Category 3
  - Acute Tox. 4: Acute toxicity – Category 4
  - Carc. 2: Carcinogenicity – Category 2
  - Repr. 1A: Reproductive toxicity – Category 1A
  - STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2