SAFETY DATA SHEET

1. Identification
Product identifier: Dry Battery (without electrolyte)
Other means of identification:
- Lead Acid Battery (without electrolyte)
Recommended use: Electric storage battery.
Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information
Manufacturer/Supplier: East Penn Manufacturing Company, Inc.
Address: 102 Deka Road, Lyon Station PA 19536
Telephone number: (610) 682-6361
Contact person: East Penn EHS Department
Emergency telephone number: USA/Canada: CHEMTREC (800) 424-9300, Outside USA 1 (703) 527-3887
E-mail: contactus@eastpenn-deka.com

2. Hazard(s) identification
Physical hazards: Not classified.
Health hazards:
- Acute toxicity, oral: Category 4
- Acute toxicity, inhalation: Category 4
- Reproductive toxicity: Category 1A
- Reproductive toxicity: Effects on or via lactation
- Specific target organ toxicity, repeated exposure: Category 2 (Blood, Central nervous system, Kidney)

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard: Category 1
- Hazardous to the aquatic environment, long-term hazard: Category 1

OSHA defined hazards: Not classified.

Label elements
Signal word: Danger
Hazard statement: The materials contained in this product may only represent a hazard if the integrity of the cell or battery is compromised; physically, thermally, or electrically abused. The below are the hazards anticipated under those conditions:

Harmful if swallowed. Harmful if inhaled. May damage fertility or the unborn child. May cause harm to breast-fed children. May cause damage to organs (Blood, Central nervous system, Kidney) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Precautionary statement
Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Use only outdoors or in a well-ventilated area. Avoid contact during pregnancy/while nursing. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Avoid release to the environment.

Response: If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Collect spillage.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead and lead compounds (inorganic)</td>
<td>7439-92-1</td>
<td>90 - 94</td>
</tr>
<tr>
<td>Lead monoxide</td>
<td>1317-36-8</td>
<td>&gt; 0.1</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The manufacturer has claimed the exact percentage as trade secret under the OSHA Hazard Communication Standard.

4. First-aid measures

Exposure to contents of an open or damaged battery: Move injured person into fresh air and keep person calm under observation. Get medical attention if any discomfort continues.

Exposure to contents of an open or damaged battery: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists.

Exposure to contents of an open or damaged battery: Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops and persists.

Exposure to contents of an open or damaged battery: Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell.

Under normal conditions of processing and use, exposure to the chemical constituents in this product is unlikely. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Most important symptoms/effects, acute and delayed

Treat symptomatically.

Indication of immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Dry chemical, foam, carbon dioxide, water fog.

Unsuitable extinguishing media

In the event that a battery is ruptured and the internal components are exposed, DO NOT USE WATER. Do not use carbon dioxide directly on cells.

Specific hazards arising from the chemical

Batteries evolve flammable hydrogen gas during charging and may increase fire risk. Containers may explode when heated.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of corrosive and flammable materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

In the event of damage resulting in a leak or exposed materials, avoid contact with contents of an open or damaged cell or battery.

Methods and materials for containment and cleaning up

Use approved industrial vacuum cleaner for removal. Sweep up or vacuum up spillage and collect in suitable container for disposal. Dispose of waste and residues in accordance with local authority requirements.
Environmental precautions

Do not allow to enter drains, sewers or watercourses.

7. Handling and storage

Precautions for safe handling

In the event of damage resulting in a leak of exposed materials, avoid contact with contents of an open or damaged cell or battery. Keep away from heat, sparks and open flame. Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Protect containers from damage. Place cardboard between layers of stacked batteries to avoid damage and short circuits.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead and lead compounds</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
<tr>
<td>(inorganic) (CAS 7439-92-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead monoxide (CAS 1317-36-8)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead and lead compounds</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
<tr>
<td>(inorganic) (CAS 7439-92-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead monoxide (CAS 1317-36-8)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead and lead compounds</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
<tr>
<td>(inorganic) (CAS 7439-92-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead monoxide (CAS 1317-36-8)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

ACGIH Biological Exposure Indices

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead and lead compounds (inorganic) (CAS 7439-92-1)</td>
<td>200 µg/l</td>
<td>Lead</td>
<td>Blood</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Appropriate engineering controls

Provide adequate ventilation. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection

None under normal conditions. Leak from a damaged or opened battery: Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

None under normal conditions. Leak from a damaged or opened battery: Glove material: Nitrile rubber Layer thickness: 0.152 or 0.381 mm Breakthrough time: 240 or 480 min. Suitable gloves can be recommended by the glove supplier.

Other

None under normal conditions. Leak from a damaged or opened battery: Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection

None under normal conditions.

Thermal hazards

When material is heated, wear gloves to protect against thermal burns.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
9. Physical and chemical properties

Appearance
  Physical state  Solid.
  Form  Lead, solid.
  Color  Not available.

Odor
  Not available.

Odor threshold
  Not available.

pH
  Not available.

Melting point/freezing point
  486 - 680 °F (252.22 - 360 °C)

Initial boiling point and boiling range
  > 2516 °F (> 1380 °C) (760 mmHg)

Flash point
  Not available.

Evaporation rate
  Not available.

Flammability (solid, gas)
  Not available.

Upper/lower flammability or explosive limits
  Flammability limit - lower (%)
  Not available.
  Flammability limit - upper (%)
  Not available.

Vapor pressure
  Not available.

Vapor density
  Not available.

Relative density
  Not available.

Solubility(ies)
  Solubility (water)  Insoluble in water.

Partition coefficient
  (n-octanol/water)
  Not available.

Auto-ignition temperature
  Not available.

Decomposition temperature
  Not available.

Viscosity
  Not available.

Other information
  Explosive properties
  Not explosive.
  Oxidizing properties
  Not oxidizing.

10. Stability and reactivity

Reactivity
  The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability
  Stable at normal conditions.

Possibility of hazardous reactions
  Will not occur.

Conditions to avoid
  Overcharging. Ignition sources.

Incompatible materials

Hazardous decomposition products
  Carbon monoxide. Carbon dioxide (CO2). Varying hydrocarbon compounds.

11. Toxicological information

Information on likely routes of exposure
  Inhalation  Exposure to contents of an open or damaged battery: Harmful if inhaled.
  Skin contact  Exposure to contents of an open or damaged battery: Dust may irritate skin.
  Eye contact  Exposure to contents of an open or damaged battery: Dust may irritate the eyes.
  Ingestion  Exposure to contents of an open or damaged battery: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
  Exposure to contents of an open or damaged battery: Dust may irritate the eyes and the respiratory system.
Information on toxicological effects

**Acute toxicity**
Exposure to contents of an open or damaged battery: Harmful if swallowed. Harmful if inhaled.

**Skin corrosion/irritation**
Exposure to contents of an open or damaged battery: May cause skin irritation.

**Serious eye damage/eye irritation**
Exposure to contents of an open or damaged battery: May cause eye irritation.

**Respiratory or skin sensitization**

- **Respiratory sensitization** No data available.
- **Skin sensitization** No data available.
- **Germ cell mutagenicity** No data available.

**Carcinogenicity**
Risk of cancer cannot be excluded with prolonged exposure.

**IARC Monographs. Overall Evaluation of Carcinogenicity**
- Lead and lead compounds (inorganic) (CAS 7439-92-1) 2B Possibly carcinogenic to humans.
- Lead monoxide (CAS 1317-36-8) 2A Probably carcinogenic to humans.

**NTP Report on Carcinogens**
- Lead and lead compounds (inorganic) (CAS 7439-92-1) Reasonably Anticipated to be a Human Carcinogen.
- Lead monoxide (CAS 1317-36-8) Reasonably Anticipated to be a Human Carcinogen.

Not listed.

**Reproductive toxicity**
None under normal conditions. Exposure to contents of an open or damaged battery: May damage fertility or the unborn child. May cause harm to breastfed babies.

**Specific target organ toxicity - single exposure**
No data available.

**Specific target organ toxicity - repeated exposure**
None under normal conditions. Exposure to contents of an open or damaged battery: May cause damage to organs (Blood, Central nervous system, Kidney) through prolonged or repeated exposure.

**Aspiration hazard**
Due to the physical form of the product it is not an aspiration hazard.

**Chronic effects**
Exposure to contents of an open or damaged battery: Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

**12. Ecological information**

**Ecotoxicity**
None under normal conditions. Exposure to contents of an open or damaged battery: Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead and lead compounds (inorganic)</td>
<td>LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss)</td>
<td>1.17 mg/l, 96 Hours</td>
</tr>
<tr>
<td>Lead monoxide (CAS 1317-36-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>LC50 Water flea (Daphnia magna)</td>
<td>0.132 mg/l, 48 Hours</td>
</tr>
</tbody>
</table>

**Persistence and degradability**
The degradation half-life of the product is not known. Lead and its compounds are highly persistent in water.

**Bioaccumulative potential**
Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but very little bioaccumulation occurs through the food chain.

**Mobility in soil**
If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.

**Mobility in general**
The product is insoluble in water and will spread on water surfaces.

**Other adverse effects**
None known.

**13. Disposal considerations**

**Disposal instructions**
Recycle the batteries, as the primary disposal method. Return lead-acid batteries to distributor, manufacturer or lead smelter for recycling. Dispose of in accordance with local regulations. Avoid discharge into water courses or onto the ground. Dispose of this material and its container to hazardous or special waste collection point.

**Local disposal regulations**
Empty containers should be taken to an approved waste handling site for recycling or disposal.
RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled.

Avoid discharge into water courses or onto the ground.

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Lead and lead compounds (inorganic) (CAS 7439-92-1) 0.1 % Annual Export Notification required.

CERCLA Hazardous Substance List (40 CFR 302.4)
Lead and lead compounds (inorganic) (CAS 7439-92-1) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Lead and lead compounds (inorganic) (CAS 7439-92-1) Reproductive toxicity
Central nervous system
Kidney
Blood
Acute toxicity

Toxic Substances Control Act (TSCA)
All components of the mixture on the TSCA 8(b) inventory are designated “active”.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

Classified hazard categories
Acute toxicity (any route of exposure)
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead and lead compounds (inorganic)</td>
<td>7439-92-1</td>
<td>90 - 94</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Lead and lead compounds (inorganic) (CAS 7439-92-1)
Lead monoxide (CAS 1317-36-8)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Contains component(s) regulated under the Safe Drinking Water Act.
US state regulations

**US. Massachusetts RTK - Substance List**
- Lead and lead compounds (inorganic) (CAS 7439-92-1)
- Lead monoxide (CAS 1317-36-8)

**US. New Jersey Worker and Community Right-to-Know Act**
- Lead and lead compounds (inorganic) (CAS 7439-92-1)
- Lead monoxide (CAS 1317-36-8)

**US. Pennsylvania Worker and Community Right-to-Know Law**
- Lead and lead compounds (inorganic) (CAS 7439-92-1)
- Lead monoxide (CAS 1317-36-8)

**US. Rhode Island RTK**
- Lead and lead compounds (inorganic) (CAS 7439-92-1)

**California Proposition 65**

![WARNING: Cancer and Reproductive Harm.](Image)

PROPOSITION 65 WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer.

WASH HANDS AFTER HANDLING.

**California Proposition 65 - CRT: Listed date/Carcinogenice substance**

- Lead and lead compounds (inorganic) (CAS 7439-92-1) Listed: October 1, 1992
- Lead monoxide (CAS 1317-36-8) Listed: October 1, 1992

**California Proposition 65 - CRT: Listed date/Developmental toxin**

- Lead and lead compounds (inorganic) (CAS 7439-92-1) Listed: February 27, 1987

**California Proposition 65 - CRT: Listed date/Female reproductive toxin**

- Lead and lead compounds (inorganic) (CAS 7439-92-1) Listed: February 27, 1987

**California Proposition 65 - CRT: Listed date/Male reproductive toxin**

- Lead and lead compounds (inorganic) (CAS 7439-92-1) Listed: February 27, 1987

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

- Lead and lead compounds (inorganic) (CAS 7439-92-1)
- Lead monoxide (CAS 1317-36-8)

**International Inventories**

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

**Issue date**
19-September-2017
List of abbreviations
LD50: Lethal Dose 50%.
TWA: Time Weighted Average.
LC50: Lethal Concentration, 50%.
SVHC: Substance of Very High Concern.

References
IARC Monographs. Overall Evaluation of Carcinogenicity
Registry of Toxic Effects of Chemical Substances (RTECS)

Disclaimer
EastPenn cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The information in this SDS was obtained from sources which we believe are reliable, but no warranty or representation as to its accuracy or completeness is hereby given. Users should consider the information herein only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal, the safety and health of employees and customers and the protection of the environment.