1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name  Dry Charge Battery

Other means of identification
Product Code  853021
Synonyms  Not available.

Recommended use of the chemical and restrictions on use
Recommended Use  Power sport batteries.
Uses advised against  Any other not listed above.

Details of the supplier of the safety data sheet
Supplier Address  Yuasa Battery, Inc.
2901 Montrose Avenue
Laureldale, PA 19605
United States
www.yuasabatteries.com

Emergency telephone number
Company Phone Number  (610) 929-5781
24 Hour Emergency Phone Number  CHEMTREC
Domestic (800) 424-9300
International 1(703) 527-3887

2. HAZARDS IDENTIFICATION

Classification

Health Hazards
Not classified

Physical hazards
Not classified

OSHA Regulatory Status
Material is an article. No health effects are expected related to normal use of this product as sold. Hazardous exposure can occur only when the product is heated, oxidized or otherwise processed or damaged to create lead dust, vapor or fume. Refer to the Safety Data Sheet for Valve Regulated Battery when battery is filled with electrolyte/battery acid.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>7440-38-2</td>
<td>0.003</td>
</tr>
<tr>
<td>Calcium</td>
<td>7440-70-2</td>
<td>0.002</td>
</tr>
<tr>
<td>Powdered Lead</td>
<td>7439-92-1</td>
<td>89-92</td>
</tr>
<tr>
<td>Tin</td>
<td>7440-31-5</td>
<td>0.006</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

Eye contact
First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If contact with material occurs flush eyes with water. If signs/symptoms develop, get medical attention.

Skin Contact
First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Wash skin with soap and water. If signs/symptoms develop, get medical attention.

Inhalation
First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If signs/symptoms develop, move person to fresh air.

Ingestion
First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If ingested consult physician immediately.

Self-protection of the first aider
Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

Symptoms
Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances, and irritability. Lead absorption may cause nausea, weight loss, abdominal spasms, and pain in arms, legs and joints. Effects of chronic lead exposure may include central nervous system (CNS) damage, kidney dysfunction, anemia, neuropathy particularly of the motor nerves with wrist drop, and potential reproductive effects.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
CO₂, dry chemical or foam.

Unsuitable extinguishing media
Avoid using water.

Specific hazards arising from the chemical

Hazardous combustion products
Lead portion of battery will likely produce toxic metal fume, vapor or dust.
Explosion data
Sensitivity to Mechanical Impact None known.
Sensitivity to Static Discharge None known.

Protective equipment and precautions for firefighters
Keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries.

Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters’ protective clothing will only provide limited protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
No special precautions expected to be necessary if material is used under ordinary conditions and as recommended. Avoid contact of lead with skin.

Other Information
Non-emergency personnel should utilize chemical gloves.

For emergency responders
No emergency procedures are expected to be necessary if material is used under ordinary conditions as recommended. Use normal clean up procedures.

Personal protective equipment: Wear chemical gloves, goggles, acid resistant clothing and boots, and respirator if insufficient ventilation.

Environmental precautions

Environmental precautions
Prevent entry into waterways, sewers, basements or confined areas. Runoff from fire control and dilution water may be toxic and corrosive and may cause adverse environmental impacts. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Lead dust should be vacuumed or wet swept into a D.O.T. approved container. Use controls that minimize fugitive emissions. Do not use compressed air.

Methods for cleaning up
Dispose of in accordance with local, State, and national regulations.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling
Handle batteries cautiously. Do not tip to avoid spills (if filled with electrolyte). Avoid contact with internal components. Wear protective clothing when filling or handling batteries. Follow manufacturer’s instructions for installation and service. Do not allow conductive material to touch the battery terminals. Short circuit may occur and cause battery failure and fire. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Eyewash stations and safety showers should be provided with unlimited water supply. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, reducing agents, and water.

Technical measures and storage conditions: Store in a cool/low-temperature well-ventilated place away from heat and ignition sources. Batteries should be stored under roof for protection against adverse weather conditions. Place cardboard between layers of stacked batteries to avoid damage and short circuits. Store batteries on an impervious surface.

Storage class:
Incompatible materials
Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, reducing agents, and water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>TWA: 0.01 mg/m³ As</td>
<td>TWA: 10 µg/m³ As</td>
<td>IDLH: 5 mg/m³ As Ceiling: 0.002 mg/m³ As 15 min</td>
</tr>
<tr>
<td>Tin 7440-31-5</td>
<td>TWA: 2 mg/m³ Sn expect Tin hydride</td>
<td>TWA: 2 mg/m³ Sn except oxides</td>
<td>IDLH: 100 mg/m³ Sn TWA: 2 mg/m³ except Tin oxides Sn</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>TWA: 0.05 mg/m³ Pb</td>
<td>TWA: 0.05 mg/m³ Pb</td>
<td>IDLH: 100 mg/m³ IDLH: 100 mg/m³ Pb TWA: 0.050 mg/m³ TWA: 0.050 mg/m³ Pb</td>
</tr>
</tbody>
</table>

Appropriate engineering controls
Engineering Controls
The health hazard risks of handling this material are dependent on factors, such as physical form and quantity. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels as low as reasonably achievable.

Individual protection measures, such as personal protective equipment
Eye/face protection
The use of goggles or full face protection may be required depending on the industrial exposure setting. Contact a health and safety professional for specific information.

Skin and body protection
Wear appropriate gloves. No skin protection is ordinarily required under normal conditions of use. In accordance with industrial hygiene practices, if contact with leaking battery is expected precautions should be taken to avoid skin contact. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

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

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Not Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Bluish gray metal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>252.2222 °C - 360 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>1380 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No Data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
Not reactive.

Chemical stability
Stable under normal conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Prolonged overcharge, sources of ignition.

Incompatible materials
Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, reducing agents, and water.

Hazardous Decomposition Products
Lead compounds exposed to high temperatures will likely produce toxic metal fume, vapor or dust; contact with strong acid/base or presence of nascent hydrogen may generate highly toxic arsine gas.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
(Acute): Under normal conditions of use, no health effects are expected.
(Chronic): Repeated and prolonged exposure may cause irritation.

Eye contact
(Acute): Under normal conditions of use, no health effects are expected. Exposure to dust may cause irritation.
(Chronic): No data available.

Skin Contact
(Acute): Under normal conditions of use, no health effects are expected.
(Chronic): No data available.
Ingestion

(Acute): Under normal conditions of use, no health effects are expected. Lead ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping.

(Chronic): No data available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>= 700 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tin 7440-31-5</td>
<td>= 15 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms

Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances, and irritability. Lead absorption may cause nausea, weight loss, abdominal spasms, and pain in arms, legs and joints.

Effects of chronic lead exposure may include central nervous system (CNS) damage, kidney dysfunction, anemia, neuropathy particularly of the motor nerves with wrist drop, and potential reproductive effects.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Not available.

Serious eye damage/eye irritation

Not available.

Irritation

Not available.

Corrosivity

Not available.

Sensitization

Not available.

Germ cell mutagenicity

The evidence for genotoxic effects of highly soluble inorganic lead compounds is contradictory, with numerous studies reporting both positive and negative effects. Responses appear to be induced by indirect mechanisms, mostly at very high concentrations that lack physiological relevance.

Carcinogenicity

There is evidence that soluble lead compounds may have a carcinogenic effect, particularly on the kidneys of rats. However, the mechanisms by which this effect occurs are still unclear. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. This has led to the classification by IARC that inorganic lead compounds are probably carcinogenic to humans (Group 2A).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>A1</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>A3</td>
<td>Group 2A</td>
<td>Reasonably Anticipated</td>
<td>X</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Not available.

STOT - single exposure

Not classified.

STOT - repeated exposure

Not classified.

Chronic toxicity

Lead is a cumulative poison. Increasing amounts of lead can build up in the body and may reach a point where symptoms and disabilities occur. Continuous exposure may result in decreased fertility. Lead is a teratogen. Overexposure of lead by either parent before pregnancy may increase the chances of miscarriage or birth defects.

Target Organ Effects

Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

Aspiration hazard

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

Numerical measures of toxicity - Product Information
12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powdered Lead</td>
<td>–</td>
<td>0.44: 96 h Cyprinus carpio</td>
<td>–</td>
<td>600: 48 h water flea µg/L</td>
</tr>
<tr>
<td>7439-92-1</td>
<td></td>
<td>mg/L LC50 semi-static 1.32:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>96 h Oncorhynchus mykiss</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg/L LC50 static 1.17: 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oncorhynchus mykiss mg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 flow-through</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
Lead is persistent in soils and sediments.

Bioaccumulation
Not available.

Mobility
Not available.

Other adverse effects
Not available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

US EPA Waste Number
Not available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>RCRA Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>Included in waste streams: F032, F034, F035, F039, K031, K060, K084, K101, K102, K161, K171, K172, K176</td>
<td>5.0 mg/L regulatory level</td>
<td>-</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K069, K086, K100, K176</td>
<td>5.0 mg/L regulatory level</td>
<td>-</td>
</tr>
</tbody>
</table>

California Hazardous Waste Codes
Not available
This product contains one or more substances that are listed with the State of California as a hazardous waste.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Hazardous Waste Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>Toxic</td>
</tr>
</tbody>
</table>
14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail.
• Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated.
• Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

DOT This product is not hazardous as defined by 49CFR 172.101 by the U.S. Department of Transportation.

TDG This product is not classified as dangerous goods by the TDG standards UN-

MEX Not regulated

ICAO (air) This product is not classified as dangerous goods by the International Air Transport Association (IATA) or the ICAO.

IATA This product is not classified as dangerous goods by the International Air Transport Association (IATA) or the ICAO.

IMDG This product is not classified as dangerous goods by the IMO.

RID This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

ADR This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Does not comply
DSL/NDSL Does not comply
EINECS/ELINCS Does not comply
ENCS Does not comply
IECSC Does not comply
KECL Does not comply
PICCS Does not comply
AICS Does not comply

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372
Chemical Name | CAS No. | Weight-% | SARA 313 - Threshold Values %
--- | --- | --- | ---
Arsenic – 7440-38-2 | 7440-38-2 | 0.003 | 0.1
Powdered Lead - 7439-92-1 | 7439-92-1 | 90 | 0.1

**SARA 311/312 Hazard Categories**

- **Acute health hazard**: No
- **Chronic Health Hazard**: No
- **Fire hazard**: No
- **Sudden release of pressure hazard**: No
- **Reactive Hazard**: No

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>1 lb</td>
<td>-</td>
<td>RQ 1 lb final RQ 0.454 kg final RQ</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>10 lb</td>
<td>-</td>
<td>RQ 10 lb final RQ 4.54 kg final RQ</td>
</tr>
</tbody>
</table>

**US State Regulations**

**California Proposition 65**

This product contains the following Proposition 65 chemicals

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powdered Lead - 7439-92-1</td>
<td>Carcinogen Developmental Female Reproductive Male Reproductive</td>
</tr>
</tbody>
</table>

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 7440-38-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Calcium 7440-70-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Powdered Lead 7439-92-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tin 7440-31-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not available.
16. OTHER INFORMATION

Prepared By              IES Engineers
Issue Date               13-Feb-2014
Revision Date            22-Jan-2015
Revision Note            Not available.

Disclaimer
The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Yuasa, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Yuasa, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

End of Safety Data Sheet