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1. IDENTIFICATION

Product identifier

Product Name Lead Acid Battery, 12 VDC

Other means of identification

Product Code(s) 6130

Safety data sheet number M01540

UN/ID no UN2800

Recommended use of the chemical and restrictions on use

Recommended Use Battery.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number

+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

Safety Data Sheets are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article".

According to OSHA, Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard.

The battery is hermetically sealed. Thus, the ingredients have no hazard potential, except the battery is violated or dismantled. In case of mistreatment the ingredients are released, a spontaneously flammable gas mixture may be released under certain circumstances (measures according to chapter 4 to 6).

Attention: If batteries are treated wrong the danger of burns or bursts occurs. Batteries must not be heated above 100°C or incinerated. The battery contents must not get in contact with water. If the negative electrode gets in contact with water or humidity hydrogen gas is formed, which may inflame spontaneously.

| | |
|--|---------------------------|
| Corrosive to metals | Category 1 |
| Skin corrosion/irritation | Category 1 Sub-category A |
| Serious eye damage/eye irritation | Category 1 |
| Carcinogenicity | Category 2 |
| Reproductive toxicity | Category 1A |
| Effects on or via lactation | Yes |
| Specific target organ toxicity (repeated exposure) | Category 1 |
| Chronic aquatic toxicity | Category 1 |

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Danger



Hazard statements

H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H351 - Suspected of causing cancer
H360 - May damage fertility or the unborn child
H362 - May cause harm to breast-fed children
H372 - Causes damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant
P201 - Obtain special instructions before use
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P263 - Avoid contact during pregnancy/while nursing
P270 - Do not eat, drink or smoke when using this product
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P273 - Avoid release to the environment
P391 - Collect spillage
P234 - Keep only in original container
P390 - Absorb spillage to prevent material damage

Other Hazards Known

Harmful to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance

Not applicable

Mixture

Chemical Family Battery, Lead Acid.
Chemical nature Battery.

Percent ranges are used where confidential product information is applicable.

| Chemical name | CAS No. | Percent Range | HMRIC # |
|--------------------------------|-----------|---------------|---------|
| Lead | 7439-92-1 | 60 - 70% | - |
| Sulfuric acid | 7664-93-9 | 20 - 30% | - |
| Lead oxide (PbO ₂) | 1309-60-0 | 3 - 7% | - |

4. FIRST AID MEASURES

Description of first aid measures

| | |
|---|--|
| General advice | Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. |
| Inhalation | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. 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. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention. |
| Skin contact | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention. |
| Self-protection of the first aider | Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. |

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

| | |
|---|--|
| Suitable Extinguishing Media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable Extinguishing Media | Caution: Use of water spray when fighting fire may be inefficient. |
| Specific hazards arising from the chemical | The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. |
| Hazardous combustion products | May emit acrid smoke and fumes. |
| Special protective equipment for fire-fighters | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|--------------------|--|
| U.S. Notice | Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals. |
|--------------------|--|

Personal precautions, protective equipment and emergency procedures

| | |
|-----------------------------|---|
| Personal precautions | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| Other Information | Refer to protective measures listed in Sections 7 and 8. |

Environmental precautions

| | |
|----------------------------------|---|
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains. |
|----------------------------------|---|

Methods and material for containment and cleaning up

| | |
|--|--|
| Methods for containment | Prevent further leakage or spillage if safe to do so. |
| Methods for cleaning up | Pick up and transfer to properly labeled containers. |
| Prevention of secondary hazards | Clean contaminated objects and areas thoroughly observing environmental regulations. |
| Reference to other sections | See section 8 for more information. See section 13 for more information. |

7. HANDLING AND STORAGE

Precautions for safe handling

| | |
|--------------------------------|--|
| Advice on safe handling | Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and shoes. |
|--------------------------------|--|

Conditions for safe storage, including any incompatibilities

| | |
|---------------------------|---|
| Storage Conditions | Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from |
|---------------------------|---|

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moisture. Keep out of the reach of children. Store away from other materials.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|-----------------------------|--|--|
| Lead CAS#: 7439-92-1 | TWA: 0.05 mg/m ³ | TWA: 50 µg/m ³ | IDLH: 100 mg/m ³ IDLH: 100 mg/m ³ Pb TWA: 0.050 mg/m ³ TWA: 0.050 mg/m ³ Pb |
| Sulfuric acid CAS#: 7664-93-9 | TWA: 0.2 mg/m ³ | TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³ | IDLH: 15 mg/m ³ TWA: 1 mg/m ³ |
| Lead oxide (PbO ₂) CAS#: 1309-60-0 | TWA: 0.05 mg/m ³ | TWA: 50 µg/m ³ | IDLH: 100 mg/m ³ Pb TWA: 0.050 mg/m ³ Pb |

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves. Impervious gloves.

Eye/face protection Face protection shield.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

General Hygiene Considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|-----------------------|---------|-----------------------|----------------|
| Physical state | Solid | Color | Not applicable |
| Appearance | Battery | Odor threshold | Not applicable |
| Odor | None | | |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|-------------------------|----------------|-------------------------|
| Molecular weight | Not applicable | |

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| | |
|--|-------------------|
| pH | No data available |
| Melting point/freezing point | No data available |
| Boiling point / boiling range | No data available |
| Evaporation rate | Not applicable |
| Vapor pressure | Not applicable |
| Vapor density (air = 1) | Not applicable |
| Specific gravity (water = 1 / air = 1) | 1.3 |
| Partition Coefficient (n-octanol/water) | Not applicable |
| Soil Organic Carbon-Water Partition Coefficient | No data available |
| Autoignition temperature | No data available |
| Decomposition temperature | No data available |
| Dynamic viscosity | Not applicable |
| Kinematic viscosity | Not applicable |

Solubility(ies)

Water solubility

| <u>Water solubility classification</u> | <u>Water solubility</u> | <u>Water Solubility Temperature</u> |
|--|-------------------------|-------------------------------------|
| No information available | No data available | No information available |

Solubility in other solvents

| <u>Chemical Name</u> | <u>Solubility classification</u> | <u>Solubility</u> | <u>Solubility Temperature</u> |
|----------------------|----------------------------------|-------------------|-------------------------------|
| None reported | No information available | No data available | No information available |

Other Information

Metal Corrosivity

| | |
|--------------------------------|-------------------|
| Steel Corrosion Rate | No data available |
| Aluminum Corrosion Rate | No data available |

Volatile Organic Compounds (VOC) Content
Not applicable

| Chemical name | CAS No. | Volatile organic compounds (VOC) content | CAA (Clean Air Act) |
|--------------------------------|----------------|---|----------------------------|
| Lead | 7439-92-1 | No data available | - |
| Sulfuric acid | 7664-93-9 | No data available | - |
| Lead oxide (PbO ₂) | 1309-60-0 | No data available | - |

Explosive properties

| | |
|------------------------------|-------------------|
| Upper explosion limit | No data available |
| Lower explosion limit | No data available |

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Flammable properties

Flash point

Not applicable

Flammability Limit in Air
Upper flammability limit
Lower flammability limit

No data available

No data available

Oxidizing properties

No data available.

Bulk density

No data available

Particle Size

No information available

Particle Size Distribution

No information available

10. STABILITY AND REACTIVITY

Reactivity

Not applicable.

Chemical stability

Stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Conditions to avoid

Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials

Oxidizing agent. Acids. Bases.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation

Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact

Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact

Corrosive. Causes severe burns. Avoid contact with skin and clothing.

Ingestion

Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts. May

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cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms

Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Aggravated Medical Conditions Eye disorders. Skin disorders. Respiratory disorders. Gastrointestinal tract. Preexisting eye disorders. Blood disorders. Kidney disorders. Gingival Tissue. Teeth.

Toxicologically synergistic products None known.

Toxicokinetics, metabolism and distribution See ingredients information below.

| Chemical name | Toxicokinetics, metabolism and distribution |
|---|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | The corrosivity of sulfuric acid makes it difficult to assess its effects on metabolism. Its corrosivity is also the main contributor to acute deaths, therefore it is not classified for acute toxicity. |
| Lead oxide (PbO ₂) (3 - 7%) CAS#: 1309-60-0 | Lead distribution in human tissues is similar to that found in experimental animals. The highest lead concentrations in adult subjects were found principally in bone and aorta (atheroma), followed by liver, lung, kidney, and pancreas. |

Product Acute Toxicity Data

| | |
|--|-------------------|
| Oral Exposure Route | No data available |
| Dermal Exposure Route | No data available |
| Inhalation (Dust/Mist) Exposure Route | No data available |
| Inhalation (Vapor) Exposure Route | No data available |
| Inhalation (Gas) Exposure Route | No data available |

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

| | |
|--------------------------------------|--------------------------|
| ATEmix (oral) | 10,000.00 mg/kg |
| ATEmix (dermal) | No information available |
| ATEmix (inhalation-dust/mist) | 30.00 mg/L |
| ATEmix (inhalation-vapor) | 220.00 mg/L |
| ATEmix (inhalation-gas) | No information available |

Ingredient Acute Toxicity Data

| Oral Exposure Route | | | | If available, see data below | |
|---|-----------------------|---------------|---------------|------------------------------|---|
| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
| Lead oxide (PbO ₂) (3 - 7%) CAS#: 1309-60-0 | Calf LD ₅₀ | ~ 50 mg/kg | None reported | None reported | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |

| | |
|--|------------------------------|
| Dermal Exposure Route | If available, see data below |
| Inhalation (Dust/Mist) Exposure Route | If available, see data below |
| Inhalation (Vapor) Exposure Route | If available, see data below |
| Inhalation (Gas) Exposure Route | If available, see data below |

Product Specific Target Organ Toxicity Single Exposure Data

| | |
|------------------------------|-------------------|
| Oral Exposure Route | No data available |
| Dermal Exposure Route | No data available |

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Inhalation (Dust/Mist) Exposure Route
Inhalation (Vapor) Exposure Route
Inhalation (Gas) Exposure Route

No data available
No data available
No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|---------------------------|---------------|---------------|---|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Human TD _{Lo} | 0.144 mg/L | 5 minutes | Lungs, Thorax, or Respiration Dyspnea | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Gas) Exposure Route

If available, see data below

Aspiration toxicity

If available, see data below

Kinematic viscosity

Not applicable

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

If available, see data below

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|------------------------------|---------|------------------|------------------|-------------------|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to skin | HSDB (Hazardous Substances Data Bank) |

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|------------------------------|---------|------------------|------------------|-------------------|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to eyes | HSDB (Hazardous Substances Data Bank) |

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

If available, see data below.

Respiratory Sensitization Exposure Route

If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route

No data available.

Dermal Exposure Route

No data available.

Inhalation (Dust/Mist) Exposure Route

No data available.

Inhalation (Vapor) Exposure Route

No data available.

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Inhalation (Gas) Exposure Route

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|------------------------|---------------|---------------|--|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Human TC _{Lo} | .003 mg/L | 168 days | Musculoskeletal Changes in teeth and supporting structures | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Gas) Exposure Route

If available, see data below

Product Carcinogenicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Carcinogenicity Data

| Chemical name | CAS No. | ACGIH | IARC | NTP | OSHA |
|--------------------------------|-----------|-------|----------|------------------------|------|
| Lead | 7439-92-1 | A3 | Group 2A | Reasonably Anticipated | X |
| Sulfuric acid | 7664-93-9 | A2 | Group 1 | Known | X |
| Lead oxide (PbO ₂) | 1309-60-0 | A3 | Group 2A | Reasonably Anticipated | X |

Legend

| | |
|--|--|
| ACGIH (American Conference of Governmental Industrial Hygienists) | A2 - Suspected Human Carcinogen A3 - Animal Carcinogen |
| IARC (International Agency for Research on Cancer) | Group 1 - Carcinogenic to Humans Group 2A - Probably Carcinogenic to Humans |
| NTP (National Toxicology Program) | Known - Known Carcinogen Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen |
| OSHA (Occupational Safety and Health Administration of the US Department of Labor) | X - Present |

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

If available, see data below

| Chemical name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|----------------------|---------------|---------------|---------------|---------------------------------------|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Cytogenetic analysis | Hamster ovary | 4 mmol/L | None reported | Positive test result for mutagenicity | No information available |

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Product Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below

| Chemical name | Test | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---------------------------------------|----------------------|---------|---------------|---------------|---------------------------------------|--|
| Lead (60 - 70%) CAS#: 7439-92-1 | Cytogenetic analysis | Monkey | 42 mg/kg | 3 weeks | Positive test result for mutagenicity | RTECS (Registry of Toxic Effects of Chemical Substances) |

Dermal Exposure Route If available, see data below

Inhalation (Dust/Mist) Exposure Route If available, see data below

| Chemical name | Test | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---------------------------------------|----------------------|-----------|---------------|---------------|---------------------------------------|--|
| Lead (60 - 70%) CAS#: 7439-92-1 | Cytogenetic analysis | Human Rat | 0.00005 mg/L | None reported | Positive test result for mutagenicity | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Vapor) Exposure Route If available, see data below

Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---------------------------------------|--|---------------|---------------|---|--|
| Lead (60 - 70%) CAS#: 7439-92-1 | Domestic mammal - Not specified TD _{Lo} | 662 mg/kg | 21 weeks | Effects on Newborn | RTECS (Registry of Toxic Effects of Chemical Substances) |
| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
| Lead (60 - 70%) CAS#: 7439-92-1 | Mouse TD _{Lo} | 4800 mg/kg | 16 days | Effects on Embryo or Fetus Cytological changes (including somatic cell genetic material) | RTECS (Registry of Toxic Effects of Chemical Substances) |

Dermal Exposure Route If available, see data below

Inhalation (Dust/Mist) Exposure Route If available, see data below

Inhalation (Vapor) Exposure Route If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|--|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Rabbit TC _{Lo} | .02 mg/L | 7 hours | Specific Developmental Abnormalities Musculoskeletal system | No information available |

Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

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Ecotoxicity Very toxic to aquatic life with long lasting effects

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---------------|---------------|------------------|---------------|---|
| Lead oxide (PbO ₂) (3 - 7%) CAS#: 1309-60-0 | 96 hours | None reported | LC ₅₀ | 0.1 mg/L | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |

Crustacea If available, see ingredient data below
Algae No data available

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data

Mobility

Soil Organic Carbon-Water Partition Coefficient No data available

Water solubility

| <u>Water solubility classification</u> | <u>Water solubility</u> | <u>Water Solubility Temperature</u> |
|--|-------------------------|-------------------------------------|
| No information available | No data available | No information available |

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

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Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Do not reuse empty containers.

US EPA Waste Number

D008, D002

| Chemical name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|-------------------|------|---|---------------------------|------------------------|
| Lead 7439-92-1 | - | Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K069, K086, K100, K176 | 5.0 mg/L regulatory level | - |

Special instructions for disposal

Dispose of material in an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

U.S. DOT

UN/ID no UN2800
Proper shipping name Battery, wet, non-spillable
Hazard Class 8
Packing Group III

TDG

UN/ID no UN2800
Proper shipping name Battery, wet, non-spillable
Hazard Class 8
Packing Group III

IATA

UN/ID no UN2800
Proper shipping name Battery, wet, non-spillable
Hazard Class 8
Packing Group III

IMDG

UN/ID no UN2800
Proper shipping name Battery, wet, non-spillable
Hazard Class 8
Packing Group III

Note:

Batteries must be stacked upright, pole side outwards. Brace the batteries securely to prevent damage and short circuits in transit. The vehicle transporting batteries can carry only one type of hazardous material. Non-hazardous goods on the same vehicle must be secured to prevent damaging the batteries. When shipping multiple units, batteries must be placed on a wooden pallet. Place honeycomb cardboard between the layers and limit the stack to three layers on a single pallet. Wrap the package several times with shrink-wrap. Different rules apply when shipping damaged batteries. A lead acid battery is considered damaged if there is a possibility of leakage due to a crack, or if one or more caps are missing.

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following:

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UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies
DSL/NDSL Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS Complies
ENCS Does not comply
IECSC Complies
KECL Complies
PICCS Complies
TCSI Complies
AICS Complies
NZIoC Complies

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
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

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 | SARA 313 - Threshold Values % |
|---|-------------------------------|
| Lead (CAS #: 7439-92-1) | 0.1 |
| Sulfuric acid (CAS #: 7664-93-9) | 1.0 |
| Lead oxide (PbO ₂) (CAS #: 1309-60-0) | 0.1 |

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic Health Hazard Yes
Fire hazard No
Sudden release of pressure hazard No
Reactive Hazard No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|--------------------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Lead 7439-92-1 | - | X | X | - |
| Sulfuric acid 7664-93-9 | 1000 lb | - | - | X |
| Lead oxide (PbO ₂) | - | X | - | - |

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| | | | | |
|-----------|--|--|--|--|
| 1309-60-0 | | | | |
|-----------|--|--|--|--|

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

| Chemical name | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|----------------------------|--------------------------|----------------|---|
| Lead 7439-92-1 | 10 lb | - | RQ 10 lb final RQ RQ 4.54 kg final RQ |
| Sulfuric acid 7664-93-9 | 1000 lb | 1000 lb | RQ 1000 lb final RQ RQ 454 kg final RQ |

U.S. - DEA (Drug Enforcement Administration) List I & List II

| Chemical name | U.S. - DEA (Drug Enforcement Administration) - List I or Precursor Chemicals | U.S. - DEA (Drug Enforcement Administration) - List II or Essential Chemicals |
|--|--|--|
| Sulfuric acid (20 - 30%) CAS#: 7664-93-9 | Not Listed | 50 gallon Export Volume (exports, transshipments and international transactions to designated countries) |

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

| Chemical name | California Proposition 65 |
|---|---|
| Lead (CAS #: 7439-92-1) | Carcinogen Developmental Female Reproductive Male Reproductive |
| Sulfuric acid (CAS #: 7664-93-9) | Carcinogen |
| Lead oxide (PbO ₂) (CAS #: 1309-60-0) | Carcinogen |



WARNING: This product can expose you to chemicals including Lead oxide (PbO₂), Lead, Sulfuric acid, which are known to the State of California to cause cancer or birth defects or reproductive harm.
For more information, go to <http://www.P65Warnings.ca.gov>

IMERC: Not applicable

U.S. State Right-to-Know Regulations

| Chemical name | New Jersey | Massachusetts | Pennsylvania |
|---|------------|---------------|--------------|
| Lead 7439-92-1 | X | X | X |
| Sulfuric acid 7664-93-9 | X | X | X |
| Lead oxide (PbO ₂) 1309-60-0 | X | X | X |

U.S. EPA Label Information

| Chemical name | FIFRA | FDA |
|---------------|----------|-----------------|
| Sulfuric acid | 180.0910 | 21 CFR 184.1095 |

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16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

| Chemical name | Global Automotive Declarable Substance List Classifications | Global Automotive Declarable Substance List Thersholds |
|---|---|--|
| Lead 7439-92-1 | Declarable Substance (LR) Prohibited Substance (LR) | 0.0 % 0.1 % |
| Lead oxide (PbO ₂) 1309-60-0 | Declarable Substance (LR) Prohibited Substance (LR) | 0.0 % 0.1 % |

NFPA and HMIS Classifications

| NFPA | Health hazards - 3 | Flammability - 0 | Instability - 0 | Physical and chemical properties - |
|------|---------------------------|------------------|----------------------|------------------------------------|
| HMIS | Health hazards - 3 - * | Flammability - 0 | Physical hazards - 0 | Personal protection - X |

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH *Immediately Dangerous to Life or Health*
ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
NDF *no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | |
|------|---------------------------------|---------|---|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| MAC | Maximum Allowable Concentration | Ceiling | Ceiling Limit Value |
| X | Listed | Vacated | These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations. |
| SKN* | Skin designation | SKN+ | Skin sensitization |
| RSP+ | Respiratory sensitization | ** | Hazard Designation |
| C | Carcinogen | R | Reproductive toxicant |
| M | mutagen | | |

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Revision Note None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet