# US - OSHA SAFETY DATA SHEET

**Issue Date** 25-Nov-2014 **Revision Date** 04-Apr-2019 **Version** 3

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

**Product identifier**

**Product Name** Battery Electrolyte

**Other means of identification**

**Product Code** 853022
**UN/ID No.** UN2796
**Synonyms** Not available.

**Recommended use of the chemical and restrictions on use**

**Recommended Use** Used to activate dry 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**

| | |
|---|---|
| Skin Corrosion/Irritation | Category 1 Sub-category A |
| Serious Eye Damage/Eye Irritation | Category 1 |

**Physical Hazards**
Not classified.

**OSHA Regulatory Status**
This product is considered hazardous by the 2012 OSHA Hazard Communication Standard/Globally Harmonized System of Classification and Labelling of Chemicals (GHS); (29 CFR 1910.1200; Revision 3).

**Label elements**

**Emergency Overview**

**Danger**

**Hazard Statements**
Fatal if inhaled.
Causes severe skin burns and eye damage.

**Appearance** Clear liquid. **Physical State** Liquid. **Odor** Pungent

**Precautionary Statements - Prevention**
Wear protective gloves/clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear respiratory protection
Wash face, hands and any exposed skin thoroughly after handling.

**Precautionary Statements - Response**
Specific treatment is urgent.
Immediately call a POISON CENTER or doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
Wash contaminated clothing before reuse.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor.
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

**Precautionary Statements - Storage**
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

**Precautionary Statements - Disposal**
Dispose of contents/container to an approved waste disposal facility.

**Hazards not otherwise classified (HNOC)**
Not available.

**Other information**
Not available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200; Revision 3).

| Chemical Name | CAS No. | Weight-% |
|---|---|---|
| Sulfuric acid | 7664-93-9 | 36-45 |

*Note: Non-hazardous chemical ingredients are not listed

## 4. FIRST AID MEASURES

**First aid measures**

**Eye Contact** In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists. Immediate medical attention is required.

**Skin Contact** For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing and shoes. Immediate medical attention is not required.

**Inhalation** Immediately move exposed subject to fresh air. If not breathing, provide artificial respiration. If breathing is difficult, administer oxygen. Seek medical attention immediately.

**Ingestion** In case of accidental ingestion, wash out mouth with copious amounts of water. Seek medical attention immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

**Self-Protection of the First Aider** Do not use mouth-to-mouth methods if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or another proper respiratory medical device.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Inhalation: Corrosive. Burning sensation. Sore throat. Cough. Labored breathing. Shortness of breath. Symptoms may be delayed. Skin: Corrosive. Redness. Pain. Blisters. Serious skin burns. Eyes: Corrosive. Redness. Pain. Severe deep burns.

**Indication of any immediate medical attention and special treatment needed**

**Note to Physicians** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**

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

**Small Fire** Dry chemical, $CO_2$, or water spray.

**Large Fire** Dry chemical or $CO_2$, alcohol - resistant foam or water spray.

**Unsuitable Extinguishing Media** Any not listed above.

**Specific hazards arising from the chemical**

Hazardous decomposition products formed: Sulfur oxides (SOx).

**Hazardous Combustion Products** Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive fumes.

**Explosion data**

**Sensitivity to Mechanical Impact** None known.
**Sensitivity to Static Discharge** None known.

**Protective equipment and precautions for firefighters**

Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
Keep out of low areas. Keep unauthorized personnel away. Stay upwind.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** Ventilate enclosed areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Other information** Non-emergency personnel should utilize chemical gloves.

**For emergency responders** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area) as an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container. Personal protective equipment: Wear chemical gloves, goggles, acid resistant clothing and boots, respirator if insufficient ventilation.

**Environmental precautions**

**Environmental Precautions** Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional ecological information.

**Methods and material for containment and cleaning up**

**Methods for Containment** Stop leak if you can do it without risk. Absorb with earth sand or other non-combustible material. Do not allow discharge of non-neutralized acid to sewer. Cautiously neutralize spilled liquid.

**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 and open container with care. Avoid contact with skin and eyes. Use only with adequate ventilation. Use caution when combining with water; DO NOT add water to corrosive liquid, ALWAYS add corrosive liquid to water while stirring to prevent release of heat, steam and fumes. Do not get in eyes or on skin or clothing. 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** Keep away from incompatible materials. Store locked up. Keep container/package tightly closed in a cool, well-ventilated place. Ventilate enclosed areas.
Storage class: Class 8B: Non-flammable corrosive materials.

**Incompatible materials** Bases, halides, organic materials, carbides, fulminates, nitrates, picrates, cyanides, chlorates, alkali halides, zinc salts, permanganates, e.g. potassium permanganate, hydrogen peroxide, azides, perchlorates, nitromethane, phosphorous; Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(iii) oxide, powdered metals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines** This product, as supplied, contains the following hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | TWA: 0.2 mg/m$^3$ thoracic particulate matter | TWA: 1 mg/m$^3$<br>(vacated) TWA: 1 mg/m$^3$ | IDLH: 15 mg/m$^3$<br>TWA: 1 mg/m$^3$ |

**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** Wear appropriate chemical safety goggles safety glasses, or face shield as described by OSHA eye and face protection regulations in 29 CFR 1910.133 at all times while handling this product. Have eyewash stations available where eye contact can occur.

**Skin and Body Protection** Wear protective gloves with elbow length gauntlet. Wear synthetic apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

**Respiratory Protection** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | | | |
|---|---|---|---|
| **Physical State** | Liquid. | | |
| **Appearance** | Clear liquid. | **Odor** | Pungent |
| **Color** | Clear. | **Odor Threshold** | Not available. |

| Property | Values | Remarks |
|---|---|---|
| **pH** | Not available. | |
| **Melting Point/Freezing Point** | Not available. | |
| **Boiling Point/Boiling Range** | 95 °C - 95.5556 °C | |
| **Flash Point** | Not available. | |
| **Evaporation Rate** | Not available. | |
| **Flammability (solid, gas)** | Not available. | |
| **Flammability Limit in Air** | | |
| **Upper Flammability Limit:** | Not available. | |
| **Lower Flammability Limit:** | Not available. | |
| **Vapor Pressure** | 10 mmHg | |
| **Vapor Density** | 1 | |
| **Specific Gravity** | 1.215-1.35 | |
| **Water Solubility** | Soluble in water. | |
| **Solubility in Other Solvents** | Not available. | |
| **Partition Coefficient** | Not available. | |
| **Autoignition Temperature** | Not available. | |
| **Decomposition Temperature** | Not available. | |

| | |
|---|---|
| **Kinematic Viscosity** | Not available. |
| **Dynamic Viscosity** | Not available. |
| **Explosive Properties** | Not available. |
| **Oxidizing Properties** | Not available. |

**Other information**

| | |
|---|---|
| **Softening Point** | Not available. |
| **Molecular Weight** | Not available. |
| **VOC Content (%)** | Not available. |
| **Density** | 10.1392-11.2658 lbs/gal |
| **Bulk Density** | Not available. |

## 10. STABILITY AND REACTIVITY

**Reactivity**
Reacts with a number of compounds.

**Chemical stability**
Stable under normal conditions.

**Possibility of hazardous reactions**
None under normal processing.

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Conditions to avoid**
Contact with organic materials, combustibles, strong reducing agents, metals, strong oxidizers, water.

**Incompatible materials**
Bases, halides, organic materials, carbides, fulminates, nitrates, picrates, cyanides, chlorates, alkali halides, zinc salts, permanganates, e.g. potassium permanganate, hydrogen peroxide, azides, perchlorates, nitromethane, phosphorous; Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(iii) oxide, powdered metals.

**Hazardous decomposition products**
Sulfur oxides (SOx).

## 11. TOXICOLOGICAL INFORMATION

**Product Information**

**Acute Toxicity** This product is not classified under Acute Toxicity (Inhalation) as this does not apply for liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery.

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 | Intravenous LD50 |
|---|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | = 2140 mg/kg ( Rat ) | - | 85 - 103 mg/m$^3$ ( Rat ) 1 h | - |

**Information on toxicological effects**

**Symptoms** Inhalation: Corrosive. Burning sensation. Sore throat. Cough. Labored breathing. Shortness of breath. Symptoms may be delayed. Skin: Corrosive. Redness. Pain. Blisters. Serious skin burns. Eyes: Corrosive. Redness. Pain. Severe deep burns.

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

**Skin Corrosion/Irritation** Causes severe burns to skin.

**Serious Eye Damage/Eye Irritation** Corrosive to eyes.

**Sensitization** No data available.

**Germ Cell Mutagenicity** Sulfuric acid has been shown to be without effect in the Ames test using various strains of S. typhimurium (pH 4 to 9) and E. coli (0.002 to 0.005%), both with and without S9. It has been shown to cause chromosomal aberrations in CHO cells (pH 3.5 to 7.4, both with and without S9), and in a non-standard assay in developing sea urchin embryos.

**Carcinogenicity** The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. **This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery.** Batteries subjected to abusive charging at excessively high currents for prolonged periods without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | A2 | Group 1 | | X |

**Reproductive Toxicity** In a developmental toxicity study conducted under a method similar to OECD test Guideline 414, no significant effects on mean numbers of implants/dam, live fetuses/litter or resorptions/litter were observed in mice and rabbits exposed by inhalation to sulfuric acid aerosol at 5 and 20 mg/cu m during gestation..

**Developmental Toxicity** No data available.

**STOT - Single Exposure** Not classified.

**STOT - Repeated Exposure** Not classified.

**Aspiration Hazard** Not applicable.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | | 500: 96 h Brachydanio rerio mg/L LC50 static | | 29: 24 h Daphnia magna mg/L EC50 |

**Persistence and degradability**
Not available.

**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.

**California Hazardous Waste Codes** Not available.

This product contains the following substances that are listed with the State of California as a hazardous waste.

| Chemical Name | California Hazardous Waste Status |
|---|---|
| Sulfuric acid<br>7664-93-9 | Toxic<br>Corrosive |

## 14. TRANSPORT INFORMATION

**DOT**

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Subsidiary class** | 8 |
| **Packing Group** | II |
| **Special Provisions** | A3, A7, B2, B15, IB2, N6, N34, T8, TP2, 154<br>Passenger aircraft/rail: 1.00 L<br>Cargo aircraft/rail: 30.00 L |

**TDG**

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Subsidiary class** | 8 |
| **Packing Group** | II |
| **Special Provisions** | Explosive Limit and Limited Quantity Index: 1.00<br>Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index: 1.00 |

**MEX** Not regulated.

**ICAO (air)** .

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Packing Group** | II |
| **Special Provisions** | - |

**IATA** .

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Packing Group** | II |
| **Special Provisions** | - |

**IMDG** .

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Packing Group** | II |
| **Special Provisions** | - |
| **Marine pollutant** | No |

**RID** .

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Packing Group** | II |
| **Classification code** | C1 |
| **Special Provisions** | - |
| **Labels** | 8 |

**ADR** .

| | |
|---|---|
| **UN/ID No.** | UN2796 |
| **Proper shipping name** | Battery fluid, acid |
| **Hazard Class** | 8 |
| **Packing Group** | II |
| **Classification code** | C1 |
| **Special Provisions** | - |
| **Labels** | 8 |

**ADN** Not regulated.

## 15. REGULATORY INFORMATION

### 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 % |
|---|---|---|---|
| Sulfuric acid - 7664-93-9 | 7664-93-9 | 36-45 | 1.0 |

**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)

| Chemical Name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | 1000 lb | | | X |

**CERCLA**

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

| Chemical Name | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | 1000 lb | 1000 lb | RQ 1000 lb final RQ<br>RQ 454 kg final RQ |

### U.S. State Regulations

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

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

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

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Sulfuric acid<br>7664-93-9 | X | X | X |

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable.

## 16. OTHER INFORMATION

**Prepared By** IES Engineers
**Issue Date** 25-Nov-2014
**Revision Date** 04-Apr-2019
**Revision Note** Changes in Section 3 and 15

**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**