SAFETY DATA SHEET

1. Identification

Product identifier: Battery Fluid Acid

Other means of identification: None.

Recommended use: Electrolyte for Industrial/Commercial electrical storage batteries.

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

Skin corrosion/irritation: Category 1

Health hazards

Serious eye damage/eye irritation: Category 1

Carcinogenicity: Category 1A

Specific target organ toxicity, single exposure to the respiratory system: Category 1

Specific target organ toxicity, single exposure to the respiratory system: Category 3

Specific target organ toxicity, repeated exposure: Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard: Category 2

Hazardous to the aquatic environment, long-term hazard: Category 3

OSHA defined hazards

Not classified.

Label elements

Signal word: Danger

Hazard statement: Causes severe skin burns and eye damage. May cause cancer. May cause respiratory irritation. Causes damage to organs (respiratory system). Causes damage to organs (respiratory system) through prolonged or repeated exposure. Toxic to aquatic life. Harmful 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 mist/vapors. Use only outdoors or in a well-ventilated area. 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: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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/doctor. Wash contaminated clothing before reuse.

Storage: Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid</td>
<td>7664-93-9</td>
<td>30 - 43</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. Components not listed are either non-hazardous or are below reportable limits.

The manufacturer has claimed the exact percentage as trade secret under the OSHA Hazard Communication Standard.

4. First-aid measures

Inhalation

Move injured person into fresh air and keep person calm under observation. Get medical attention immediately.

Skin contact

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately.

Ingestion

Exposure not expected under normal use conditions. Inhalation of mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.

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.

Unsuitable extinguishing media

Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

Specific hazards arising from the chemical

Sulfur trioxide (corrosive and toxic). Risk of fire and explosion on contact with metals as a result of hydrogen formation. 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.

General fire hazards

Substance does not burn but will support combustion.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Neutralize the spilled material before disposal. Stop the flow of material, if this is without risk. Sweep up or vacuum up spillage and collect in suitable container for disposal. Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Dispose of waste and residues in accordance with local authority requirements.

Environmental precautions

Prevent runoff from entering drains, sewers, or streams.
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. Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Use personal protective equipment as required. Wash thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store in original tightly closed container. Protect containers from damage.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)</th>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid (CAS 7664-93-9)</td>
<td>PEL</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid (CAS 7664-93-9)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Thoracic fraction.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards</th>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid (CAS 7664-93-9)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

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

Appropriate engineering controls
Provide adequate ventilation. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection
Leak from a damaged or opened battery: Glove material: Nitrile rubber Layer thickness: 240 or 480 mm Breakthrough time: 0.153 or 0.381 min. Suitable gloves can be recommended by the glove supplier.

Other
Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Gas mask with acid gas canister and high-efficiency particulate filter.

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
Clear, colorless liquid.

Physical state
Liquid.

Form
Sulfuric acid, liquid.

Color
Not available.

Odor
Odorless.

Odor threshold
Not available.

pH
< 1

Melting point/freezing point
Not available.

Initial boiling point and boiling range
235.4 - 240.8 °F (113 - 116 °C)

Flash point
Not available.

Evaporation rate
< 1
Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
4 (as hydrogen gas)
Flammability limit - upper (%)
74 (as hydrogen gas)

Vapor pressure 13 mm Hg
Vapor density Not available.
Relative density 1.2 - 1.3

Solubility(ies)
Solubility (water) 100 %
Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 932 °F (500 °C) (as hydrogen gas)
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. Exposure to contents of an open or damaged battery: Reacts violently with strong alkaline substances.
Chemical stability Stable at normal conditions.
Possibility of hazardous reactions Will not occur.
Conditions to avoid Do not allow water to get into container because of reaction.

11. Toxicological information
Information on likely routes of exposure

Inhalation Mist or vapor may irritate the respiratory system. Difficulty in breathing. Inhalation of vapors or mists will likely result in mild to severe irritation of the nose, throat and lungs, depending on airborne concentration.
Skin contact Causes severe skin burns.
Eye contact Causes severe eye burns.
Ingestion Causes digestive tract burns. May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Exposure not expected under normal use conditions. Exposure to liquid causes serious eye and tissue damage. May cause serious chemical burns to the skin. Inhalation of mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.

Information on toxicological effects
Acute toxicity May be harmful if swallowed.

Components Species Test Results

Sulphuric acid (CAS 7664-93-9)

Acute Oral
LD50 Rat 2140 mg/kg

Skin corrosion/irritation Causes skin burns.
Serious eye damage/eye irritation Causes serious eye damage.
Respiratory or skin sensitization

Respiratory sensitization
Due to lack of data the classification is not possible.

Skin sensitization
Due to lack of data the classification is not possible.

Germ cell mutagenicity
Due to lack of data the classification is not possible.

Carcinogenicity
The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

IARC Monographs. Overall Evaluation of Carcinogenicity
Sulphuric acid (CAS 7664-93-9) 1 Carcinogenic to humans.

NTP Report on Carcinogens
Sulphuric acid (CAS 7664-93-9) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Reproductive toxicity
Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure
May cause respiratory irritation. Causes damage to organs (respiratory system).

Specific target organ toxicity - repeated exposure
Causes damage to organs (respiratory system) through prolonged or repeated exposure.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

Further information
Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

12. Ecological information

Ecotoxicity
Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Persistence and degradability
Not persistent.

Bioaccumulative potential
Potential to bioaccumulate is low.

Mobility in soil
Potential for mobility in soil is very high. Expected to be highly mobile in soil.

Other adverse effects
The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions
Neutralize electrolyte/sulfuric acid. Avoid discharge into water courses or onto the ground. Dispose of in accordance with local regulations.

Local disposal regulations
Empty containers should be taken to an approved waste handling site for recycling or disposal.

Hazardous waste code
D002: Corrosive waste

Waste from residues / unused products
Avoid discharge into water courses or onto the ground.

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

14. Transport information

DOT
UN number UN2796
UN proper shipping name Battery fluid, acid
Transport hazard class(es) Class 8
Subsidiary risk -
Label(s) 8
Packing group II
Environmental hazards Marine pollutant No
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions A3, A7, B2, B15, IB2, N6, N34, T8, TP2, TP12
Packaging exceptions 154
Packaging non bulk 202
Packaging bulk: 242

IATA

<table>
<thead>
<tr>
<th>UN number</th>
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<td>Battery fluid, acid</td>
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<tr>
<td>Transport hazard class(es)</td>
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<tr>
<td>Class</td>
<td>8</td>
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<tr>
<td>Subsidiary risk</td>
<td>-</td>
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<tr>
<td>Packing group</td>
<td>II</td>
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<tr>
<td>Environmental hazards</td>
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<td>ERG Code</td>
<td>8L</td>
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<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
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IMDG

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<th>UN2796</th>
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<td>UN proper shipping name</td>
<td>BATTERY FLUID, ACID</td>
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<tr>
<td>Transport hazard class(es)</td>
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<tr>
<td>Class</td>
<td>8</td>
</tr>
<tr>
<td>Subsidiary risk</td>
<td>-</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>No.</td>
</tr>
<tr>
<td>EmS</td>
<td>F-A, S-B</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
</tbody>
</table>

15. Regulatory information

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Hazardous Chemical Reporting Requirements apply when an Extremely Hazardous Substance is present at a facility in an amount equal to or exceeding 500 pounds or the Threshold Planning Quantity, whichever is lower per 40CFR370.10(a)(1)

- **TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**
  - Not regulated.
- **CERCLA Hazardous Substance List (40 CFR 302.4)**
  - Sulphuric acid (CAS 7664-93-9) Listed.
- **SARA 304 Emergency release notification**
  - SULFURIC ACID (CAS 7664-93-9) 1000 LBS
  - Not listed.
- **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**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable quantity (pounds)</th>
<th>Threshold planning quantity (pounds)</th>
<th>Threshold planning quantity, lower value (pounds)</th>
<th>Threshold planning quantity, upper value (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid</td>
<td>7664-93-9</td>
<td>1000</td>
<td>1000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazardous chemical**

- **Classified hazard categories**
  - Skin corrosion or irritation
  - Serious eye damage or eye irritation
  - Carcinogenicity
  - 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>Sulphuric acid</td>
<td>7664-93-9</td>
<td>30 - 43</td>
</tr>
</tbody>
</table>
Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Sulphuric acid (CAS 7664-93-9)

Safe Drinking Water Act (SDWA)
Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Sulphuric acid (CAS 7664-93-9) 6552

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Sulphuric acid (CAS 7664-93-9) 20 %WV

DEA Exempt Chemical Mixtures Code Number
Sulphuric acid (CAS 7664-93-9) 6552

US state regulations

US. Massachusetts RTK - Substance List
Sulphuric acid (CAS 7664-93-9)

US. New Jersey Worker and Community Right-to-Know Act
Sulphuric acid (CAS 7664-93-9)

US. Pennsylvania Worker and Community Right-to-Know Law
Sulphuric acid (CAS 7664-93-9)

US. Rhode Island RTK
Sulphuric acid (CAS 7664-93-9)

California Proposition 65
WARNING: This product can expose you to Sulphuric acid, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance
Sulphuric acid (CAS 7664-93-9) Listed: March 14, 2003

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Sulphuric acid (CAS 7664-93-9)

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 (EINECS)</td>
<td>Yes</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>Yes</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
Revision date    31-August-2020
Version #        04
List of abbreviations

LD50: Lethal Dose 50%.

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.