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**HANGZHOU HAIJIU  
BATTERY CO., LTD.**

## SAFETY DATA SHEET

Revision Date: Jan 1st, 2023

### SECTION 1: IDENTIFICATION

<b>Product Identifier:</b>	Battery Electrolyte
<b>Other Product Name:</b>	Sulfuric Acid
<b>Relevant Identified Uses:</b>	Used to activate dry batteries
<b>Uses Advised Against:</b>	Any Other Not Listed Above
<b>Supplier :</b>	Hangzhou Haijiu Battery.,CO.,Ltd.
<b>Address:</b>	1F 2F BLDG 2 161 17TH STR BAIYANG STR HANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE HANGZHOU CHINA
<b>Emergency Telephone Number:</b>	+86-571-88144451
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### SECTION 2: HAZARDOUS IDENTIFICATION

**Classification according to Regulation (EC) No 1272/2008 [CLP/GHS] 8B:** Non flammable corrosive materials

Classification according to 67/548/EEC or 1999/45/EC

Xi: Irritating

C: Corrosive

#### Label elements

Product identifier:

Battery Electrolyte

Hazard pictograms

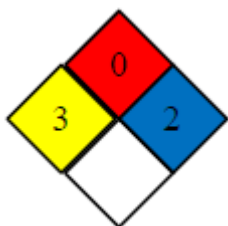


Xn: Harmful

Xi: Irritating

C: Corrosive

NFPA:



Class E: Corrosive materials

Signal word: DANGER

**Hazard statements:**

Causes severe skin burns and eye damage Causes skin irritation

May cause respiratory irritation Precautionary statements:

Keep out of reach of children.

Keep containers tightly closed.

Keep away from heat, sparks, and open flame while charging batteries.

**Other hazards**

Adverse human health effects and symptoms:

**Inhalation:** (Acute): May cause corrosive burns – irreversible damage.

(Chronic): Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

**Skin:** (Acute): Causes severe skin burns and eye damage.

(Chronic): Repeated or prolonged exposure to corrosive materials will cause dermatitis.

**Eye:** (Acute): Causes serious eye damage.

(Chronic): Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

**Ingestion:** (Acute): May cause irreversible damage to mucous membranes.

(Chronic): Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

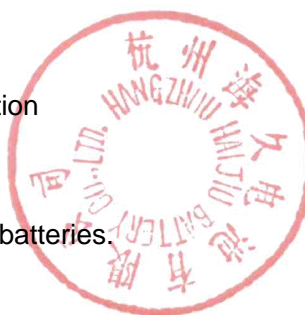
Routes of Entry:

Inhalation, Skin, Eye, Ingestion/Oral Medical conditions aggravated by exposure:

Lungs, Skin

Acute exposure to sulfuric acid causes severe irritation, burns and permanent tissue damage to all routes of exposure.

Chronic exposure to sulfuric acid may cause erosion of tooth enamel, inflammation of nose, throat and respiratory system.



### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Description of the mixture:**

CAS No	EC No	% [weight]	Name	WHMIS Classifications	Classification according to CLP (1272/2008)
7664-93-9	231-639-5	35-45%	Sulfuric Acid	D1A, E(including >51%, <=51%)	C; R35; S1/2, S26, S30, S45

7732-18-5	231-791-2	55-65%	Water	Uncontrolled product according to WHMIS classification criteria.	Not Listed
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Under United States Regulations (29 CFR 1900.1200 – Hazard Communication standard), this product is considered hazardous. In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS). According to the Globally Harmonized Standard for Classification and Labeling (GHS) this product is considered hazardous

## SECTION 4: FIRST AID MEASURES

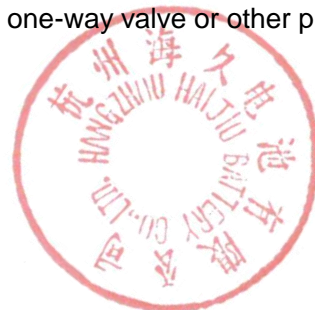
**Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention

**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.

**Ingestion:** Give plenty of water to drink. Do NOT induce vomiting. Obtain medical attention immediately if ingested. **Inhalation:** Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth – to – mouth method if victim inhaled the substance..

**Self-protection of the first aider:**

If artificial respiration is required use a pocket mask equipped with a one-way valve or other proper respiratory medical device.



## SECTION 5: FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Dry chemical, CO2 or water spray

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

**Special Hazards Arising from the Substance or Mixture**

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

**Advice for Fire-fighters:** 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

**Additional Information:**

Reacts violently with metals, nitrates, chlorates, carbides and other organic materials. Reacts with most metals to yield explosive flammable hydrogen gas.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

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

#### For non-emergency personnel

**Protective equipment:** Wear 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:

Prevent entry into waterways, sewers, basements or confined areas.

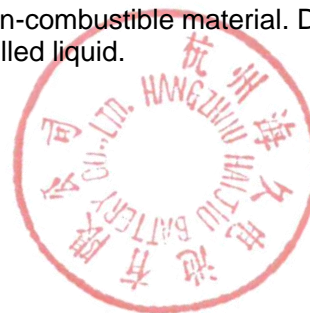
Methods and material for containment and cleaning up

#### 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 an neutralized acid to sewer. Cautiously neutralize spilled liquid.

#### For cleaning up:

Dispose of in accordance with local, State, and national regulations.



## SECTION 7: HANDLING & STORAGE

### Precautions for safe handling

#### Protective measures:

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.

#### Advice on general occupational hygiene

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: Technical measures and 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

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION,

Limit value type (country of origin)	Substance name	EC-No.	CAS-No	Limit value	Monitoring and observation processes
TWA (ACGIH) TWA (CA ON) STEL(CA QU) TWA(CA QU) STEL (CH)	Sulfuric Acid	231-639-5	7664-93-9	0.2 mg/m3 0.2 mg/m3 3 mg/m3 1 mg/m3 2 mg/m3	Thoracic fraction Thoracic

TWA(CH)			1 mg/m3	
STEL(FI)			1 mg/m3	
TWA(FI)			0.2 mg/m3	
Ceiling(DE)			0.1 mg/m3 peak	Inhalable fraction
MAK(DE)			0.1 mg/m3	Inhalable fraction
Ceiling(JP)			1 mg/m3	
TWA(ME)			1 mg/m3	
TWA(NIOSH)			1 mg/m3	
TWA(OSHA)			1 mg/m3	

### Exposure Controls:

#### Appropriate engineering controls:

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

to an acceptable level.

#### Personal Protective Equipment:

Pictograms:



**Eye/Face Protection:** Wear face shield and eye protection.

**Skin 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:** None required under normal conditions of use. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state: Liquid Color: Clear Odor: Pungent Odor threshold: No Data

Safety relevant basic data pH (20 °C): No Data

Melting point/range(°C): No Data

Initial boiling point/range (°C): 95-95.5556

Decomposition temperature (°C): No Data

Flash point (°C): No Data

Ignition temperature (°C): No Data

Vapor pressure (hPa): 10 mmHg

Vapor density (air = 1): 1

Density (g/cm3): 10.1392-11.2658 lbs/gal

Bulk density (kg/m3): No Data

Specific Gravity/Relative Density (water=1): 1.215-1.35

Water solubility (20°C in g/l): 100%

Solubility(ies): No Data

Partition coefficient: No Data

N-Octanol/Water (log Po/w): No Data  
 Viscosity, dynamic (mPa s): No Data  
 Physical hazards: Flammable gases Metal corrosion  
 Other safety information:  
 Properties of explosive atmospheres (mixtures):  
 Gases and vapors: No Data  
 Dusts: No Data  
 Physical chemical properties of nanoparticles: No Data  
 Limiting oxygen concentration: No Data  
 Bulk density: No Data  
 Solubility in different media: No Data  
 Stability in organic solvents and identity of relevant degradation products: No Data  
 Evaporation rate: 1 n-butyl, Acetate=1  
 Conductivity: No Data  
 Surface tension: No Data  
 Dissociation constant in water (pKa): No Data  
 Oxidation-reduction Potential: No Data  
 Fat solubility (solvent – oil to be specified): No Data  
 Critical temperature: No Data

## SECTION 10: STABILITY & REACTIVITY

**Reactivity:** Not reactive

**Chemical stability** Stable under normal temperatures and pressures

**Possibility of hazardous reactions** Hazardous polymerization will not occur.

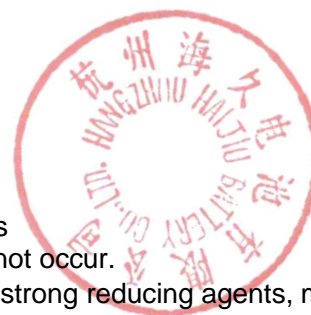
**Conditions to avoid:** Contact with organic materials, combustibles, strong reducing agents, metals, strong oxidizers, water.

**Incompatible materials:**

Reacts violently with strong reducing agents, metals, sulfur trioxide, strong oxidizers and water. Contact with metals may product toxic sulfur dioxide fumes and may release flammable hydrogen gas.

**Hazardous decomposition products:**

Sulfur trioxide, carbon monoxide, sulfuric acid fumes, and sulfur dioxide.



## SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Sulfuric Acid (7664-93-9)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	2140 mg/kg	Rat	LD50	
Acute inhalative toxicity (vapor)	30 mg/m3	Guinea Pig	LCLo	7 Days (con.)
Acute inhalative toxicity (vapor)	510 mg/m3	Rat	LC50	2 Hours
Acute inhalative toxicity (vapor)	3 mg/m3	Human	LCLo	24 Weeks
Irritation	5 mg	Rabbit	SEV (eye)	30 second rinse
Irritation	250 ug	Rabbit	SEV (eye)	
Water (7732-18-5)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	>90 mL/kg	Rat	LD50	

Other information:

**Carcinogenic Effects:**

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.

Carcinogenic Effects			
	CAS	IARC	NTP
Sulfuric acid	7664-93-9	Group 1-Carcinogenic	Not established

Routes of exposure:

**In case of ingestion:**

(Acute): May cause irreversible damage to mucous membranes.

(Chronic): Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

**In case of skin contact:**

(Acute): Causes severe skin burns and eye damage.

(Chronic): Repeated or prolonged exposure to corrosive materials will cause dermatitis.

**In case of inhalation:**

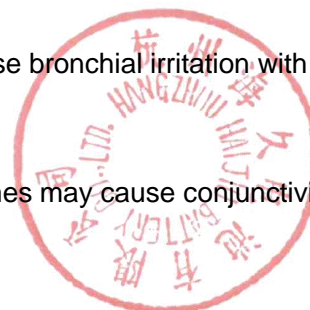
(Acute): May cause corrosive burns – irreversible damage.

(Chronic): Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

**In case of eye contact:**

(Acute): Causes serious eye damage.

(Chronic): Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.



## SECTION 12: ECOLOGICAL INFORMATION

**Toxicity:** Aquatic toxicity

**Substances Acute (short-term) toxicity:** Sulfuric Acid

Effect dose	Exposure time	Species	Method	Evaluation	Ramark
82mg/L	24Hours	Brachydaniorerio	LC50		
22mg/L	96Hours	Cyprinus carpio	LOEC		Lowest observable effect concentration

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Product/packaging disposal:** Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Waste codes/waste designations according to EWC/AVV: 16 06 06

**Additional information:**

Any waste marked with an asterisk (\*) is considered as a hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

## SECTION 14. TRANSPORT INFORMATION

Land transport

UN-No: UN2796

Proper shipping name: Battery fluid, acid  
Class(es): 8

Packing group: II

Hazard label(s): 8

Special provision(s): -

Sea transport

UN No: UN2796

Proper shipping name: Battery fluid, acid  
Class(es): 8

Packing group: II

Special provision(s): -

Air transport (ICAO-IATA/DGR):

UN No: UN2796

Proper shipping name: Battery fluid, acid  
Class(es): 8

Packing group: II

Special provision(s): -

## SECTION 15: REGULATORY INFORMATION

National regulations(Canada): WHMIS Classification:

Class E: Corrosive materials present at greater than 1%

*This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Controlled Products Regulations.*

Canada DSL:

The following substances are listed on the Canadian DSL: Sulfuric Acid (7664-93-9); Water (7732-18-5)

Canada NDSL:

None of the components on this SDS are listed on the Canadian NDSL:

National regulations(China):

The following components are listed on the Inventory list for China: Sulfuric Acid (7664-93-9); Water (7732-18-5)

National regulations(European Union): Classification:

Xn; Xi; C

Risk Phrases: R35, R36, R38

Safety Phrases: S1/2, S26, S30, S45

The following components are listed on the EU EINECS: Sulfuric acid (7664-93-9); Water (7732-18-5)

None of the above mentioned components are listed on the EU ELNICS.

National regulations(Japan):

The following chemicals are on the Japanese ENCS: Sulfuric Acid (7664-93-9); Water (7732-18-5)

National regulations(Korea):

The following substances are listed on the Korean KECL: Sulfuric Acid (7664-93-9); Water (7732-18-5)

National regulations(United States):

The following substances are on the MA, NJ, and PA Right To Know Lists: Sulfuric Acid (7664-93-9); Water (7732-18-5)

The following substances are on the TSCA inventory: Sulfuric Acid (7664-93-9); Water (7732-18-5)

National regulations(Mexico):

Pollutant Release and Transfer Register: Reporting Emissions

## SECTION 16: OTHER INFORMATION



Relevant R-, H- and EUH-phrases (number and full text):

**Hazard Abbreviations:**

Xn: Harmful

Xi: Irritant C: Corrosive

**Risk Phrases:**

R35: Causes severe burns

R36: Irritating to eyes R38: Irritating to skin

**Safety Phrases:**

S1/2: Keep locked up and out of the reach of children

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S30: Never add water to this product

S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)

**Hazard statements:**

H314: Causes severe skin burns and eye damage

H315: Causes skin irritation

H335: May cause respiratory irritation

**Precautionary statements:** P102: Keep out of reach of children. P233: Keep containers tightly closed.

**P210: Keep away from heat, sparks, and open flame while charging batteries.**

Hangzhou Haijiu Battery Co., Ltd. provides the information in this SDS in good faith. However

Hangzhou Haijiu Battery Co., Ltd. makes no representations as to its comprehensiveness or accuracy.

This data sheet is intended, as a guide, for the appropriate precautionary handling of the material by a properly trained person using it.

Individuals receiving this information must exercise their independent judgement in determining its appropriateness for a particular process. Hangzhou Haijiu Battery Co., Ltd. will not accept responsibility for damages resulting from use of reliance upon this information.

This SDS was revised in Jan 1st, 2023 according to Regulation (EC) No 1907/2006(REACH)

