Safety Data Sheet (SDS)

1. IDENTIFICATION

Issue Date: 06/01/2015, SDS # 004, Version #: 01

Product Name	Battery Acid
Synonyms	Battery Electrolyte (Acid) , Sulfuric Acid (Dilute)
Product Use	Used to Activate Dry Batteries
Manufacturer / Supplier / Address	**Yacht Battery Co., Ltd.** 4F-5, No. 925, Sec. 4, Taiwan Blvd., Taichung, 40767 Taiwan, R.O.C. **Yacht Technology (Vietnam), Co., Ltd.** Lot_A9H_CN, Bau Bang Industrial Park, Bau Bang District, Binh Duong Province, Vietnam www.yacht-battery.com
Transportation Emergency Number	Infotrac (24-Hour Emergency Contact Number) 1-800-535-5053 (North America) 1-352-323-3500 (International)

NOTE: The Yacht battery is considered an article as defined by 29 CFR 1910.1200 (OSHA Hazard Communication Standard). The information contained in this SDS is supplied at the customer's request for information only.

2. GHS HAZARD(S) IDENTIFICATION

Health		**Physical**
Skin corrosion / irritation	Category 1	Corrosive to metals, Category 1
Series eye damage / eye irritation	Category 1	
Carcinogenicity	Category 1A	
Specific target organ toxicity, Single exposure	Category 3 Respiratory Tract irritation	

GHS Label Elements:



DANGER!

DANGER!

- May be corrosive to metals.
- Causes severe skin burns and eye damage.
- May cause cancer.
- May cause respiratory irritation.

- **Precautionary Statements**

Prevention	Do not breathe vapor or mist. Wash thoroughly after handling.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Immediately, remove person to fresh air. If breathing difficulties develop, obtain medical treatment. If on skin (or hair): Immediately remove all contaminated clothing. Rinse skin with water / shower. 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. If exposed or concerned: Get medical advice / attention. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store in corrosive resistant container with a resistant inner line. Store locked up.
Disposal	Dispose of contents / container in accordance with local / regional / national / international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS (Chemical / Common Names)	CAS Number	% by Weight
Electrolyte (H_2SO_4 / H_2O)	7664-93-9	30-40
Water	7732-18-5	60-70

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

Inhalation	IF INHALED: Immediately remove person to fresh air. Immediately call a poison control center or doctor for treatment advice.
Skin contact	Immediately take off all contaminated clothing. Rinse skin with water / shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician.
Eye contact	Immediately flush eyes for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. DO not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into lungs.
Most important symptoms / effects, acute and delayed	Burning pain and severe corrosive skin damage. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: flush with water immediately. While flushing, remove clothes which do not adhere to affected areas. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
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.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	CO_2 ; foam; dry chemical. Trained fire-fighters may use water spray under certain conditions.
Unsuitable extinguishing media	Do not use water jet as an extinguisher as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Sulfuric acid will not burn, but is capable of igniting finely divided combustible materials on contact. Use dry chemical agents to smother combustible materials. Avoid breathing mists and vapors. Use full protective equipment (acid-resistant bunker gear) and self-contained breathing apparatus.
Unusual fire and explosion hazards	Battery fluid can evolve flammable hydrogen gas when exposed to metals (such as during charging of lead acid batteries) and may increase the fire risk near sparks, excessive heat or open flames. See Section 10 for list of fire by-products.
Specific hazards in case of fire	Battery Electrolyte (Sulfuric Acid) is corrosive.
Additional information	Reacts violently with metals, nitrates, chlorates, carbides and other organic materials. Reacts with most metals to yield explosive flammable hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency preparedness	Keep unnecessary personnel away. Keep people away from and upwind of spill / leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. If toxic vapors are produced at unknown concentrations, wear a NIOSH-approved respirator or SCBA.
Methods and materials for containment and cleaning up	Large spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand, or earth and place in containers. Prevent entry into waterways, sewer, basements or confined areas. Small spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Use clay, sand, or diatomaceous earth. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses, or onto the ground.

7. HANDLING AND STORAGE

Handling	Do not breathe vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial practices.
Storage	Store locked up. Store in original tightly closed container. Store away from incompatible materials. Keep away from heat, sparks, and open flame. (See section 10 of the SDS)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits (mg/m³)

Ingredient	CAS Number	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Sulfuric Acid (Dilute)	7664-93-9	1	0.2	1	1	0.2	0.05 (a)

NOTES:
(a) Thoracic fraction

- **OSHA:** US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
- **ACGIH:** US ACGIH Threshold Limit Values
- **NIOSH:** US NIOSH Pocket Guide to Chemical Hazards

Biological limit values

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

Engineering Controls (Ventilation)	Good ventilation required (typically 10 air changes per hour) 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. Provide eyewashes station.
Personal protective equipmen (Pictograms)	
Respiratory Protection	NONE REQUIRED UNDER NORMAL HANDLING CONDITIONS When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.
Skin Protection	Wear appropriate chemical resistant gloves and clothing.
Eye Protection	Wear safety glasses with side shields (or goggles). Face shield is recommended.
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	Liquid
Color	Clear / cloudy liquid
Odor	Slightly acid
Odor Threshold	Not available
pH	<1.0
Melting Point	-79.6 °F / -62 °C Not applicable unless individual components exposed.
Boiling Point	230 °F / 110 °C Not applicable unless individual components exposed.
Flash Point	Not available
Evaporation Rate (Butyl Acetate = 1)	Not determined
Flammability	Not available
Upper / lower flammability or explosive limits	Hydrogen — Flammability Limit Lower – 4 % Flammability Limit Upper – 74 %
Vapor Pressure (mm Hg @ 20 ° C)	11.7
Vapor Density	Not available (Air = 1)
Relative Density	1.28 / 1.32
Solubility	100%
% Volatile by Weight	0%
Partition coefficient (n-octanol / water)	Not available
Auto-ignition temperature	932° F (500°C) (as hydrogen gas)
Decomposition temperature	Not available
Viscosity	Not available

10. STABILITY AND REACTIVITY

Reactivity	This product is stable and non-reactive under normal conditions of use, storage, and transport.
Stability	Material is stable under normal conditions.
Conditions to Avoid	Keep away from heat, sparks, open flames, and / or hot surfaces. No smoking. Contact with incompatible materials.
Incompatibility (materials to avoid)	Strong reducing agents. Reacts with organic materials. Combustibles. Metals. Carbides. Nitrates.
Hazardous Decomposition Products	Sulfur dioxide (SO_2) Sulfur trioxide. Hydrogen.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

INFORMATION ON LIKELY ROUTES OF EXPOSURE

Inhalation	Corrosive. Inhalation produces damaging effects on the mucous membranes and upper respiratory tract. Inhalation of vapors may cause lung edema. Prolonged inhalation may be harmful.
Skin Contact	Causes severe skins burns. Prolonged skin contact may cause dermatitis.
Eye Contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical, and toxicological characteristics	Burning pain and severe corrosive skin damage. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Effects	Occupational exposure to the substance or mixture may cause adverse effects.
Chronic Effects	Prolonged inhalation may be harmful. Sulfuric acid fumes: Prolonged, repeated exposure to acid fumes / mists may cause chronic bronchitis, irritation of skin, mucous membranes and gastrointestinal tract and erosion of the teeth.

Toxicological Data

Constituents	Sulfuric Acid absorbed in glass-fiber material (CAS 7664-93-9)	
Species	Rat	
Test Results	2140 mg/kg	510 mg/m3
Acute toxicity	LD50	LC50
Skin corrosion / irritation	Causes severe skin burns	
Serious eye damage / eye irritation	Causes severe eye damage	
Respiratory Sensitization	No data available	
Skin Sensitization	Not a skin sensitizer	
Germ Cell Mutagenicity	No data available to indicate product or any components present a greater than 0.1% are mutagenic or genotoxic.	

CARCINOGENICITY

Mist: May cause cancer by inhalation
ACGIH Group A2 (Suspected human carcinogen)

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

- **OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050 / 1200)**

  Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified
Specific target organ toxicity - repeated exposure	Not classified
Aspiration hazard	Not classified

12. ECOLOGICAL INFORMATION

Persistence and degradability	Sulfuric acid is reactive and not very persistent in the ecosystem.
Bio-Accumulative potential (including Mobility)	Very high mobility and solubility indicate very low risk of bioaccumulation.
Aquatic toxicity (test results and comments)	24-hr LC50, fresh water fish (Brachydanio rerio): 82 mg/l 96-hr LOEC, fresh water fish (Cyprinus carpio): 22 mg/l (lowest observable effect concentration)
Additional Information	No known effects on stratospheric ozone depletion. Volatile organic compounds: 0% (by Volume) Water Endangering Class (WGK): NA

13. DISPOSAL CONSIDERATIONS

Disposal Instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents / container in accordance with local / regional / national / international regulations.
Hazardous waste code	D002: Corrosive waste The waste code should be assigned in discussion between the user, the producer, and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or lines may retain some product residues. This material and its container must be disposed of in a safe manner. (see: Disposal Instructions)
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

Ground – US-DOT / CAN-TDG / EU-ADR / APEC-ADR

Proper shipping name		Battery fluid, acid	
Hazard class	8	**ID number**	UN2796
Packing group	II	**Labels**	Corrosive

Aircraft – ICAO-IATA

Proper shipping name		Battery fluid, acid	
Hazard class	8	**ID number**	UN2796
Packing group	II	**Labels**	Corrosive

Reference IATA packing instructions Y840, 851, 855

Vessel – IMO-IMDG

Proper shipping name		Battery fluid, acid	
Hazard class	8	**ID number**	UN2796
Packing group	II	**Labels**	Corrosive

Reference IMDG packing instructions P001.

15. REGULATORY INFORMATION

US Federal Regulations

All components are on the U.S. EPA TSCA Inventory List
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

TSCA

- **TSCA Section 8b Inventory Status**
  All chemicals comprising this product are either exempt or listed on the TSCA Inventory.
- **TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**
  Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sulfuric Acid (Dilute) (CAS 7664-93-9)	LISTED

Superfund Amendment and Reauthorization Act of 1986 (SARA)

Hazard Categories	Immediate Hazard – Yes Delayed Hazard – Yes Fire Hazard – Yes Pressure Hazard – Yes Reactivity Hazard – Yes

SARA 302 Extremely hazardous substance

Chemical Name	CAS Number	Weight-%	Reportable Quantity	Threshold Planning Quantity
Sulfuric Acid (dilute)	7664-93-9	30-40	1000 lb EPCRA RQ	1000 lb TPQ
Water	7732-18-5	60-70	Not Listed	Not Listed

- **Section 311/312 Hazard Chemical:** Yes
- **Section 313 (TRI Reporting)**

Chemical Name	CAS Number	% by Weight
Sulfuric Acid (Dilute)	7664-93-9	30-40

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)**
  Sulfuric Acid (Dilute) (CAS 7664-93-9)

- **Safe Drinking Water Act (SDWA)**

  Not regulated

- **Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

  Sulfuric Acid (Dilute) (CAS 7664-93-9), 6552

- **Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

  Sulfuric Acid (Dilute) (CAS 7664-93-9), 20 % WV

- **DEA Exempt Chemical Mixtures Code Number**

  Sulfuric Acid (Dilute) (CAS 7664-93-9), 6552

US State Regulations

Sulfuric Acid (Dilute) (CAS 7664-93-9)	**US. Massachusetts RTK – Substance List**
	US New Jersey Worker and Community Right-to-know Act
	US Pennsylvania Worker and Community Right-to-know Law
	US Rhode Island RTK

- **US. California Proposition 65**

  The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects, or other reproductive harm:

Chemical Name	CAS Number	% by Weight
Strong inorganic acid mists including sulfuric acid	NA	30-40

California Consumer Product Volatile Organic Compound Emissions

International Inventories

Country(s) or Region	Inventory Name	On inventory (yes / no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*** 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).

- **Canadian Domestic Substance List (DSL)**

  All ingredients remaining in the finished product as distributed into commerce are included on the Domestic Substances List.

  WHMIS Classifications

  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 SDS contains all the information required by the Controlled Products Regulations.

- **NPRI and Ontario Regulation 127/01**

  This product contains the following chemicals subject to the reporting requirements of Canada NPRI +/or Ont. Reg. 127/01:

Chemical Name	CAS Number	% by Weight
None	NA	NA

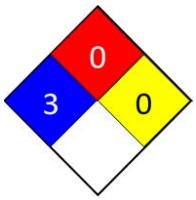
- **European Inventory of Existing Commercial Chemical Substances (EINECS)**
  All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Exisiting Commercial Chemical Substances.

European Communities (EC) Hazard Classification according to directives 67/548/EEC and 1999/45/EC.

H	P
H314	P264, P280, P301+P330+P331, P303+P361+P353, P305+P351+P338

Relevant H-, P- number and full text
Hazard Abbreviations:
C: Corrosive
Hazard statements:
H314: Causes severe skin burns and eye damage.
Precautionary statements:
P264: Wash hands thoroughly after handling.
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 / Immediately remove all contaminated clothing. Rinse skin with water / shower.
P305+P351+P338:
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.

16. OTHER INFORMATION

Issue Date	06/01/2015
Revision Date	-
Version #	01
Further information	NFPA Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
NFPA ratings	

DISCLAIMER:
This Safety Data Sheet is based upon information and sources available at the time of preparation or revision date. Information in the SDS was obtained from sources which we believe are reliable, but are beyond our direct supervision or control. We make no Warranty of Merchantability, Fitness for any particular purpose or any other Warranty, Expressed or Implied, with respect to such information and we assume no liability resulting from its use. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. It is the obligation of each user of this product to determine the suitability of this product and comply with the requirements of all applicable laws regarding use and disposal of this product. For additional information concerning Yacht Battery Co., Ltd. products or questions concerning the contents of this SDS please contact your Yacht representative.