

# SAFETY DATA SHEET – 14-311

**1. IDENTIFICATION**

**REVISION DATE: 1/7/2017**

<p><b>PRODUCT IDENTITY:</b> Sulfuric Acid, Battery Electrolyte</p> <p><b>CDID:</b> 1.400 Specific Gravity</p>	<p><b>Product Use:</b> Electric Storage Battery</p> <p><b>Manufacturer/Supplier:</b> C&amp;D Technologies, Inc.</p> <p><b>Address:</b> C&amp;D Technologies, Inc. 1400 Union Meeting Road Blue Bell, PA 19422-0858</p> <p>Web Sites: <a href="http://www.cdtechno.com">www.cdtechno.com</a></p> <p>North America 24 Hour Emergency Telephone: (CHEM TEL) 1-800-255-3924 International 24 Hour Emergency Telephone: (CHEM TEL) 1-813-248-0585 C&amp;D Technologies Inc. Telephone: 215-619-2700</p>
---	--

**2. GHS HAZARDS IDENTIFICATION**

Health	Environmental
Skin Corrosion/Irritation - Category 1A Serious Eye Damage/Eye Irritation - Category 1 Carcinogenicity - Category 1A	Hazardous to the Aquatic Environment - Acute Category 3

**GHS Label:**

Health	Environmental
<p><b>Hazard Statements</b> <b>DANGER!</b> Causes severe skin burns and eye damage. Causes serious eye damage. Acute: tissue destruction on contact. May cause second and third degree burns or blindness with prolonged contact. May be fatal if swallowed. Chronic: inhalation of mists may cause upper respiratory irritation.</p>	<p><b>Precautionary Statements</b> Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing, eye protection/face protection. Causes skin irritation, serious eye damage. Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid. Irritating to eyes, respiratory system, and skin.</p>

**SAFETY DATA SHEET – 14-311****3. \*COMPOSITION / INFORMATION ON INGREDIENTS**

INGREDIENTS (Chemical/Common Names):	CAS No.:	% by Wt:
* Sulfuric Acid	7664-93-9	49-52
NON-HAZARDOUS INGREDIENTS		
Water	7732-18-5	48-51
<b>SECTION 313 (40 CFR 372) LISTED TOXIC CHEMICALS ARE PRECEDED BY AN *.</b>		

**4. FIRST AID MEASURES****INHALATION:**

Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

**INGESTION:**

Give large quantities of milk or water; Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.

**SKIN:**

Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.

**EYES:**

Flush immediately with large amounts of water for at least 15 minutes while lifting lids; Seek immediate medical attention if eyes have been exposed directly to acid.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** Not Applicable

**Flammable Limits as H<sub>2</sub> gas:** LEL: 4%; UEL: 74%

**Unusual Fire and Explosion Hazards:** hydrogen gas may be present. Hydrogen gas and acid mist is generated upon overcharge or in fire. Ventilate Area.

**Extinguishing media:** Class ABC or CO<sub>2</sub>. Caution should be taken not to use CO<sub>2</sub> directly on the battery cell as the thermal shock may cause cracking of the battery case and release of battery electrolyte.

**Fire Fighting Procedures:**

Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

**SAFETY DATA SHEET – 14-311****6: ACCIDENTAL RELEASE MEASURES**

Neutralize any spilled electrolyte with soda ash or sodium bicarbonate until fizzing stops. When the reaction stops the pH should be neutral at 6-8. Collect residue and place it in a suitable container. Residue may be hazardous waste. When neutralized, the spill is non-hazardous. Keep untrained individuals away from the spilled material. Provide adequate ventilation, hydrogen gas may be given off during neutralization. Stop flow of material, contain/absorb small spills with dry sand, earth or vermiculite. Do not use combustible materials. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of un-neutralized acid to sewer. Acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

**7. HANDLING AND STORAGE****Handling:**

- Add water to acid after neutralization to avoid excessive heat generation.
- Store in cool, dry area away from reactives and combustibles.
- Do not store in sealed, unventilated areas.
- Provide secondary containment if large volumes are stored.

**Storage:**

Keep containers tightly closed in a cool, well-ventilated area.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Limits (mg/m<sup>3</sup>)** Note: N.E. = Not Established

INGREDIENTS (Chemical/Common Names):	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Sulfuric Acid	1	0.2	1	1	0.2	0.05 (c)

(c)Thoracic fraction

**Engineering Controls (Ventilation):**

General room ventilation is sufficient during normal use and handling. Do not install batteries in a sealed, unventilated area.

**Respiratory Protection (NIOSH/MSHA approved):**

None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed PEL, use NIOSH or MSHA-approved acid mist respiratory protection.

**Skin Protection:**

Rubber or plastic acid-resistant gloves with elbow-length gauntlet.

**Eye Protection:**

Chemical goggles or full-face shield.

**Other Protection:**

Acid – resistant apron, clothing and boots.

**SAFETY DATA SHEET – 14-311**

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Chemically impervious apron and face shield recommended when adding water or electrolyte to batteries. Wash Hands after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Properties Listed Below are for Electrolyte:			
Boiling Point:	<b>235 F</b>	Specific Gravity (H <sub>2</sub> O = 1):	<b>1.400 +/- 0.010</b>
Melting Point:	<b>N/A</b>	Vapor Pressure (mm Hg):	<b>1mm @ 145.8</b>
Solubility in Water:	<b>100%</b>	Vapor Density (AIR = 1):	<b>Greater than 1</b>
Evaporation Rate: (Butyl Acetate = 1)	<b>N/A</b>	% Volatile by Weight:	<b>N/A</b>
pH:	<b>~1 to 2</b>	Flash Point:	<b>N/A</b>
Appearance and Odor:	<b>Colorless liquid, oily fluid, vapors are colorless; acrid odor when hot or charging.</b>		

**10. STABILITY AND REACTIVITY**

Stability: Stable X Unstable    

This product is stable under normal conditions at ambient temperature.

**Incompatibilities:** (materials to avoid)

Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

**Hazardous Decomposition Products:**

Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide.

**Hazardous Polymerization:**

Will not occur

**11. TOXICOLOGICAL INFORMATION****Routes of Entry:**

Harmful by all routes of entry.

**Inhalation:**

Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

**Ingestion:**

May cause severe irritation of mouth, throat, esophagus and stomach.

**Skin Contact:**

May cause severe irritation, burns and ulceration.

## SAFETY DATA SHEET – 14-311

**Eye Contact:**

May cause severe irritation, burns, cornea damage, and blindness.

**Effects of Overexposure - Acute:**

May cause severe skin irritation, damage to cornea, upper respiratory irritation.

**Effects of Overexposure - Chronic:**

Possible erosion of tooth enamel, inflammation of nose, throat & bronchial tubes.

**Carcinogenicity:**

The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category I 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. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

**Medical Conditions Generally Aggravated by Exposure:**

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

**Acute Toxicity:**

LC50: Rat: 375 mg/m<sup>3</sup>; LC50: guinea pig: 510 mg/m<sup>3</sup>

Oral LD50: Rat: 2140 mg/kg

Inhalation LC50: Rat: 510 mg/m<sup>3</sup>

Unreported LDLo: Rat: 135 mg/kg

**Additional Health Data:**

Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8. Follow good personal hygiene to avoid skin contact: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site.

**12. ECOLOGICAL INFORMATION**

**Environmental Fate:** Sulfuric acid can pose a threat if released to the environment.

**Environmental Toxicity: Aquatic Toxicity:**

24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L

96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L

**SAFETY DATA SHEET – 14-311****13. DISPOSAL CONSIDERATIONS (UNITED STATES)**

Place neutralized slurry into sealed acid resistant containers and dispose of as hazardous waste, as applicable. Large water diluted spills, after neutralization and testing, should be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

**14. TRANSPORT INFORMATION**

**FOR DOMESTIC, CANADIAN, EXPORT, and AIR (IATA) SHIPMENTS: UN or NA Identification**

**Number: UN2796**

**LABEL: Corrosive**

**PACKING GROUP: II**

**PROPER SHIPPING NAME: Battery Fluid, Acid**

**EMERGENCY RESPONSE GUIDE: 157**

**HAZARD CLASS: 8**

**15. REGULATORY INFORMATION****UNITED STATES:**

<b>EPCRA Sections – Sulfuric Acid</b>	<b>Thresholds</b>
302 - Emergency Planning Notification	TPQ $\geq$ 1,000 lbs.
304 - Emergency Release Notification	RQ $\geq$ 1,000 lbs.
311 - MSDS Reporting	*TPQ $\geq$ 500 lbs.
312 - Chemical Inventory Reporting (i.e. Tier II)	*TPQ $\geq$ 500 lbs.

**\*The reporting threshold for Sulfuric Acid is  $\geq$  the designated TPQ or 500 lbs, whichever is less.**

**EPCRA Section 313**

The reporting of lead and sulfuric acid (and their releases) in lead-acid batteries used in cars, trucks, most cranes, forklifts, locomotive engines, and aircraft for the purposes of EPCRA Section 313 is not required. Lead-acid batteries used for these purposes are exempt for Section 313 reporting per the "Motor Vehicle Exemption." See page B-22 of the U.S. EPA Guidance Document for Lead and Lead Compound Reporting under EPCRA Section 313 for additional information of this exemption.

**TSCA:**

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

**SAFETY DATA SHEET – 14-311**

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A)

**RCRA:** Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

**16. OTHER INFORMATION**

NFPA Hazard Rating for sulfuric acid:

Flammability (Red) = 0

Health (Blue) = 3

Reactivity (Yellow) = 2

X = Acid

Sulfuric acid is water-reactive if concentrated.

---

MSDS Preparation/Review Date: 1/3/2017  
Prepared by: W. E. Kozlowski – Director EHS

Revision: 2