

**MATERIAL SAFETY DATA SHEET****SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

<b>PRODUCT IDENTITY:</b> Sulfuric Acid, Battery Electrolyte	<b>MANUFACTURER NAME:</b> C & D Technologies, Inc.
CDID: CH Line, C Line Plus 1.310 Specific Gravity	<b>ADDRESS:</b> 1400 Union Meeting Road P. O. Box 3053 Blue Bell, PA 19422-0858
EMERGENCY: (610) 828-9309	TELEPHONE: (215) 619-2700
<b>24 HOUR EMERGENCY TELEPHONE:</b> (CHEM TEL) 1-800-255-3924	

**SECTION II: COMPOSITION / INFORMATION ON INGREDIENTS**

HAZARDOUS COMPONENT	CAS#	OSHA PEL	ACGIH TLV	% BY WEIGHT
*SULFURIC ACID	7664-93-9	1.0mg/ m3	1.0mg/ m3	40 - 43%
<b>NON-HAZARDOUS INGREDIENTS</b>				
Water	7732-18-5	N/A	N/A	57 - 60%
SECTION 313 (40 CFR372) LISTED TOXIC CHEMICALS ARE PRECEDED BY AN *				

**SECTION III: HAZARDS IDENTIFICATION**

<b>APPEARANCE AND ODOR:</b>  Liquid, Colorless, Oily Fluid,  Vapors are Colorless; Acrid Odor when Hot or Charging	<b>RATING CODES</b>	<b>0=Insignificant</b>	<b>1=Slight</b>	<b>2=Moderate</b>
		<b>3=High</b>	<b>4=Extreme</b>	
	<b>HMIS RATING</b>	Health: <b>3</b>	Flammability: <b>0</b>	Reactivity: <b>2</b>
		Other: <b>0</b>		
	<b>NFPA RATING</b>	Health: <b>3</b>	Flammability: <b>0</b>	Reactivity: <b>2</b>
		Other: <b>0</b>		
	Sulfuric acid is water-reactive if concentrated.			
<b>ROUTES OF ENTRY:</b> Inhalation X Skin X Ingestion X				

**TARGET ORGANS:** Skin, Eyes, Upper Respiratory Tract**HEALTH HAZARDS (ACUTE AND CHRONIC):****ACUTE:** Tissue destruction on contact. May cause 2nd and 3rd degree burns or blindness with prolonged contact. Ingestion will cause corrosive burns on contact. May be fatal if swallowed. Inhalation of acid mist may cause a coughing reaction at low exposure levels.**CHRONIC:** Inhalation of mists may cause upper respiratory irritation and pulmonary edema.**SIGNS AND SYMPTOMS OF OVEREXPOSURE:** Irritation or burning of exposed tissues, redness or blisters.**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Respiratory disorders may be aggravated by prolonged inhalation of mists.

## SECTION IV: FIRST AID MEASURES

### EMERGENCY AND FIRST AID PROCEDURES:

<u>SKIN / EYES</u>	<u>INGESTION</u>
<ul style="list-style-type: none"> <li>• Flush with water for 15 minutes.</li> <li>• Remove contaminated clothing</li> <li>• If irritation continues, seek medical attention</li> </ul>	<ul style="list-style-type: none"> <li>• Do not induce vomiting</li> <li>• Drink large quantities of milk or water</li> <li>• Give CPR if breathing has stopped</li> <li>• Seek medical attention immediately</li> </ul>

## SECTION V: FIREFIGHTING MEASURES

### FIRE AND EXPLOSIVE PROPERTIES:

Flash Point: N/A                      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 a fire. Ventilate area thoroughly.

**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.

**SPECIAL FIREFIGHTING PROCEDURES:** Ventilate the area well. SCBA and acid protective clothing are recommended

## SECTION VI: ACCIDENTAL RELEASE MEASURES

### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

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 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.

**CONTAINMENT:** Contain large spills with earth or clay dikes.

## SECTION VII: HANDLING AND STORAGE

### HANDLING AND STORAGE PRECAUTIONS:

- 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.

## SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

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

### PERSONAL PROTECTIVE EQUIPMENT (IN THE EVENT OF BATTERY BREAKAGE):

**Eye Protection=** chemical goggles or safety glasses with sideshields and a full-face shield

**Protective Gloves=** rubber or neoprene

**Respiratory Protection=** NIOSH approved acid mist respirator, if OSHA PEL is exceeded **or respiratory irritation occurs**

**Other Protective Equipment =** acid resistant apron or clothes.

**WORK PRACTICES:** Maintain eyewash and drench shower in area.

## SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT:</b> 235F	<b>EVAPORATION RATE:</b> (Water = 1):<1
<b>APPEARANCE/ODOR:</b> At normal temperatures clear, colorless, liquid/Acrid smell	
<b>VAPOR DENSITY:</b> (Air=1)>1	<b>SPECIFIC GRAVITY:</b> 1.310+/-0.010
<b>SOLUBILITY IN WATER:</b> 100%	<b>MELTING POINT:</b> N/A
<b>VAPOR PRESSURE:</b> 145.8/mm	

### SECTION X: STABILITY AND REACTIVITY

**STABILITY:** This is a stable material.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Metals and combustibles. Can react with oxidizing or reducing agents.

**HAZARDOUS DECOMPOSITION OR BYPRODUCTS:** Hydrogen gas, Sulfur Trioxide may be generated during battery overcharge conditions, in fire and at high temperatures. In fire may emit CO, CO<sub>2</sub> and Sulfides.

**HAZARDOUS POLYMERIZATION WILL NOT OCCUR.**

### SECTION XI: TOXICOLOGICAL INFORMATION

<b>LD 50 INFORMATION:</b>	Dose:	<b>2140 mg/kg</b>
	Test Animal	<b>Rat</b>
	Administrative Route	<b>Oral</b>
<b>LDLo INFORMATION:</b>	Dose	<b>135 mg/kg</b>
	Test Animal	<b>Man</b>
	Administrative Route	<b>Unreported</b>
<b>LC50 INFORMATION:</b>	Dose	<b>510 mg/m<sup>3</sup></b>
	Test Animal	<b>Rat</b>
	Length of Exposure	<b>Inhalation</b>
<b>EFFECT ON EYES / SKIN:</b> Corrosive		
<b>CARCINOGENICITY:</b> 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. "The National Toxicology Program (NTP) has designated strong inorganic sulfuric acid mists as a known human carcinogen." 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 however result in the generation of Sulfuric Acid mist at higher levels.		

### SECTION XII: ECOLOGICAL INFORMATION

Sulfuric Acid can pose a threat if released to the environment. See waste disposal method in Section XIII.

### SECTION XIII: DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:** This battery electrolyte is a hazardous waste by the characteristic of corrosivity. Follow proper disposal methods as allowed by your local ordinances and site permits. Acid contained in scrap batteries will be recycled and beneficially reused if the battery is handled through the C&D lead-recycling program. Contact your C&D sales representative for more information.

**RCRA WASTE DISPOSAL NO.: D002**

### SECTION XIV: TRANSPORT INFORMATION

**FOR DOMESTIC, CANADIAN AND EXPORT SHIPMENTS:**

<b>UN OR NA IDENTIFICATION NUMBER:</b> UN2796	<b>HAZARD CLASS:</b> 8
<b>EMERGENCY RESPONSE GUIDE:</b> 157	
<b>PROPER SHIPPING NAME:</b> Battery Fluid, Acid	<b>LABEL:</b> Corrosive
<b>PACKING GROUP:</b> II	

### SECTION XV: REGULATORY INFORMATION

See 29 CFR 1910.268(b)(2)

### SECTION XVI: OTHER INFORMATION

The information herein is given in good faith, but no warranty, expressed or implied, is made.