





## SULFURIC ACID PRECAUTIONS

**SKIN CONTACT:** Flush with water, see doctor if it doesn't work.

**EYE CONTACT:** Flush with water and call doctor immediately.

**Ingestion:** Call the doctor and flush mouth with water, have the patient drink milk if patient is conscious. Do not give anything to the unconscious person.

## SECTION5: FIREFIGHTING MEASURES

In case of fire in an adjacent area, use water, CO<sub>2</sub> or dry chemical extinguishers, if cells are packed in. Their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpacked cells use LITH-X. In this case, do not use water. As with any fire wear, self-contained breathing apparatus to avoid inhalation of hazardous decomposition products.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**ACTION TAKEN FOR THE LEAKAGE OR SPILLS**

If sulfuric acid is spilled from a battery, neutralize the acid with sodium bicarbonate (baking soda), sodium carbon (soda ash), or calcium oxide (lime).

Flush the area with water discard to the sewage systems. Do not allow acid into the sewage system before it is neutralized.

### WASTE DISPOSAL METHOD:

Neutralized acid may be flushed down the sewer. Used batteries must be treated as hazardous waste and disposed of according to local policy and National Laws. A copy of this material safety data must be supplied to any scrap dealer .

## SECTION7: HANDLING & STORAGE

### Spill or Leak Procedures:

Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer.

### Handling and Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

### Precautionary Labeling:

**POISON - CAUSES SEVERE BURNS**

**DANGER - CONTAINS SULFURIC ACID**



### SECTION 8: PERSONAL PROTECTION

EXPOSURE	PROTECTION	COMMENTS
SKIN	Rubber gloves, Apron	Protective equipment must be worn if battery is cracked or otherwise damaged.
RESPIRATORY	Respirator (for lead)	A respirator should be worn during reclaim operations if the TLV exceeded.
EYES	Safety goggles, Face Shield	

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

COMPONENTS	DENSITY	MELTING POINT	SOLLUBILITY (H <sup>2</sup> O)	ODOR	APPEARANCE
Lead	11.34	327.4°C (Boiling)	None	None	Sliver-Gray Metal
Lead Sulfate	6.2	1070°C (Boiling)	40 mg/l (15°C)	None	White Powder
Lead Dioxide	9.4	290°C (Boiling)	None	None	Brown Powder
Sulfuric Acid	About 1.3	About 114°C (Boiling)	100%	Acidic	Clear Colorless Liquid
Fiberglass Sep.	N/A	N/A	SLIGHT	TOXIC	WHITE FIBROUS GLASS
ABS	N/A	N/A	NONE	NO ODOR	SOLID

### SECTION 10: STABILITY & REACTIVITY

COMPONENT	Sulfuric Acid
STABILITY	Stable at all temperatures
POLYMERIZATION	Will not polymerize
INCOMPATIBILITY	Reactive metals, strong bases, most organic compounds
DECOMPOSITION PRODUCTS	Sulfuric dioxide, trioxide, hydrogen sulfide, hydrogen
CONDITIONS TO AVOID	Prohibit smoking, sparks, etc. from battery charging area. Avoid mixing acid with other chemicals.



### SECTION11: TOXICOLOGICAL INFORMATION

**LEAD:** The toxic effects of lead are accumulative and slow to appear. It affects the kidneys, reproductive, and central nervous system.

The symptoms of lead overexposure are anemia, vomiting, headache, stomach pain (lead colic), dizziness, loss of appetite, and muscle and joint pain. Exposure to lead from a battery most often occurs during lead reclaim operations through the breathing or ingestion of lead dusts and fumes.

**SULFURIC ACID:** Sulfuric acid is a strong corrosive. Contact with acid can cause severe burns on the skin and in the eyes.

Ingestion of sulfuric acid will cause GI tract burns. Acid can be release if the battery case is damaged or if the vents are tampered with.

**FIBERGLASS SEPARATOR:** Fibrous glass is an irritant of the upper respiratory tract, skin and eyes. Please use the relative protection gears if necessary.

### SECTION12: ECOLOGICAL INFORMATION

COMPONENTS	FLASHPOINT	EXPLOSIVE LIMITS	COMMENTS
Lead	None	None	
Sulfuric Acid	None	None	
Hydrogen		4% - 74.2%	Sealed batteries can emit hydrogen only if over charged(float voltage > 2.4VPC)
Fiberglass Sep.	N/A	N/A	Poisonous vapors may be released. Please wear self contained breathing apparatus in case of fire.
ABS	None	N/A	Temperatures over 300 °C (572°F) may release combustible gases. Wear positive pressure self contained breathing apparatus.

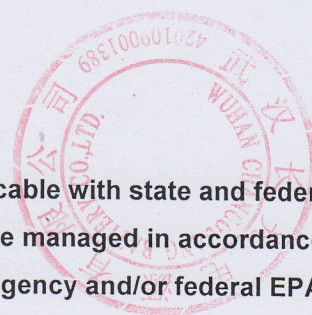
### SECTION13: DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:**

Spent batteries: Send to secondary lead smelter for recycling.

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations.

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.





## SECTION 14. TRANSPORT INFORMATION

IMO IMDG rules that is not dangerous goods(2010Edition)

Hazards identification:None

Suggestion according to imo imdg code:The substance is not subject to IMO IMDG Code according to special provision 238.

Packaging requirements: The goods are packaged according to the packaging requirement of ordinary goods.

## SECTION 15: REGULATORY INFORMATION

### Engineering Controls:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.

### Work Practices:

Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when filling or handling batteries.

### Respiratory Protection:

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

### Protective gloves:

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

### Eye Protection:

Chemical goggles or face shield.

### Other Protection:

Acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

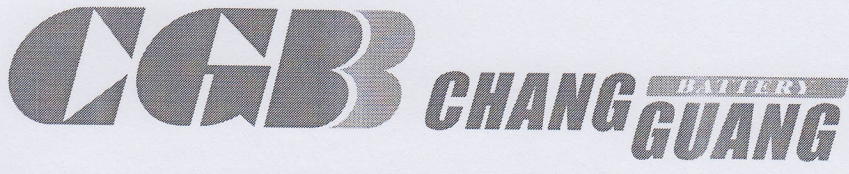
### Emergency Flushing:

In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

## SECTION 16: OTHER INFORMATION/DISCLAIMER

This information has been compiled from sources considered to be dependable and is to the best of our





knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein.

This information relates to the specific materials designated and may not be valid for such material used in combination with any other materials or in any process, It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.

