



# YHI CORPORATION (S) PTE LTD

No. 2 Pandan Road Singapore 609254 Tel: (65) 6264-2155 Fax: (65) 6265-9927, 6266-5368  
Website: <http://www.yhi.com.sg> E-mail: [sales@yhi.com.sg](mailto:sales@yhi.com.sg)

## MATERIAL SAFETY DATA SHEET

### SECTION ONE - PRODUCT IDENTIFICATION

#### Chemical Trade Name (as used on label)

Dry Charged Battery  
Without Electrolyte / Acid

#### Chemical Family / Classification

Electric Storage Battery

#### Company Name / Owner

**YHI Corporation (Singapore) Pte Ltd**

No. 2 Pandan Road  
Singapore 609254  
Telephone: +65 6264-2155  
Fax: +65 6265-9927 / 6266-5368  
Email: [sales@yhi.com.sg](mailto:sales@yhi.com.sg)  
Revision Date: January 2024

#### Brand Name

Neuton Power

### SECTION TWO - INFORMATION ON INGREDIENTS

#### Inorganic Lead Compound

Lead	:	❖ Antimony
		❖ Arsenic
		❖ Tin
Case Material	:	❖ Polypropylene (PP)
Others	:	❖ Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )
		❖ Paper pulp Separators with glass mat

### SECTION THREE - HAZARDOUS INFORMATION

Inorganic Lead Compound	CAS Number	Approx. % by Weight or Vol.	Air Exposure Limits (µg / m <sup>3</sup> )		
			OSHA	ACGIH	NIOSH
<b>LEAD</b>	7439-92-1	53	50	150	100
❖ Antimony	7440-36-0	0.25	500	500	-
❖ Arsenic	7440-38-2	0.003	10	200	-
❖ Tin	7440-31-5	0.06	2000	2000	-
<b>CASE MATERIAL</b>					
❖ Polypropylene	9003-07-0	5 - 6	N/A	N/A	N/A
<b>OTHERS</b>					
❖ Sulfuric Acid	7664-92-1	16 - 20	1000	1000	1000
❖ Paper pulp separators with glass mat					



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### Routes of entry:

#### Lead compounds:

Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume.

#### Inhalation:

Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

#### Ingestion:

Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and sever cramping. This may lead rapidly to stemming toxicity and must be treated by a physician.

#### Skin contact:

Not absorbed through the skin

#### Eye contact:

May cause eye irritation

### SECTION FOUR - EMERGENCY AND FIRST AID PROCEDURES

#### Inhalation

❖ Lead : Remove from exposure, gargle, wash nose and lips, consult physician

#### Ingestion

❖ Lead : Consult physician immediately

#### Eyes

❖ Lead : Flush immediately with large amounts of water for at least 15 minutes  
Consult physician

**WARNING : Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to State of California to cause cancer and reproductive harm.  
Battery also contain other chemicals known to the State of California to cause cancer**

### SECTION FIVE - FIRE FIGHTING MEASURE

**Dry charged lead acid without electrolyte is not combustible material. Inorganic lead compound is not a combustible material, nor will it explode under conditions of normal use.**

- |                                    |   |
|------------------------------------|---|
| Flash Point                        | : N/A Flammable Limits  |
| LEL                                | : 4.1% (Hydrogen Gas) UEL = 74.2%   |
| Extinguishing media                | : CO <sub>2</sub> , Foam, Dry Chemical  |
| Special firefighting procedures    | : Wear full body protective clothing and self-contained breathing apparatus with positive pressure and full face piece      |
| Unusual fire and explosion hazards | : Filled lead acid battery with electrolyte can cause explosion because they generated hydrogen gas LEL = 4.1%, UEL = 74.2% |
- Source of ignition away from filled lead acid batteries.
  - Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries.
  - Follow manufacturer's instructions for installation and service Extinguishing Media : CO<sub>2</sub>; Foam; Dry Chemical



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### SECTION SIX - ACCIDENTAL RELEASE MEASURE

**Dry charged lead acid battery did not contained any electrolyte, so, no any material will spilled**

#### **If the battery filled with electrolyte**

Steps to be taken in case material is released or spilled:

- Stop flow if possible
- Soak up small spills with clay, sand, or diatomaceous earth
- Dilute spill cautiously with five to six volumes of water and gradually neutralize with sodium bi-carbonate, soda ash, or lime

When exposure level is not known, wear NIOSH/MSHA approved respirator or SCBA

#### **Waste disposal method:**

Neutralized and dispose in accordance with local, state, and federal regulations

#### **Avoid Direct Contact**

#### **Other Precautions:**

Sodium bi-carbonate, soda ash, sand, or lime should be kept in same general area for emergency use

### SECTION SEVEN - HANDLING AND STORAGE

Dry charged batteries without electrolyte:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment

Dry charged batteries after filled with electrolyte:

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

Precautionary labeling

POISON - CAUSE SEVERE BURNS

### SECTION EIGHT - HEALTH HAZARD DATA

#### **Routes of Entry:**

#### **Lead Compounds:**

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### **Inhalation: Lead Compounds:**

Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

### **Ingestions: Lead Compounds:**

Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity and must be treated by physician.

### **Skin Contact:**

Lead Compound: not absorbed through the skin.

### **Eye Contact:**

Lead Compounds: may cause eye irritation.

### **Effects of Overexposure - Acute:**

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability

### **Effects of Overexposure - Chronic:**

Lead Compounds: Anemia; neuropathy; particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females

### **Carcinogenicity:**

Lead Compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present

### **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 skin diseases such as eczema and contact dermatitis. Lead acid and its compounds can aggravate some forms of kidney, liver and neurologic diseases

### **After dry charged battery filled with electrolyte:**

#### **Respiratory protection:**

None required under normal conditions.

#### **Protective gloves:**

Rubber or plastic acid-resistant gloves with elbow-length gauntlet for use when filling batteries

#### **Eye protection:**

Chemical goggles or face shield for use when filling batteries

#### **Other protection:**

- Wear coveralls or full-body covering during use.
- When filling batteries use acid-resistant apron.
- Under severe exposure or emergency conditions, wear acid-resistant clothing and boots

## **SECTION NINE - PHYSICAL AND CHEMICAL PROPERTIES**

### **Lead**

Boiling Point	: > 2516 °F	Specific Gravity (H <sub>2</sub> O = 1)	: 9.6 to 11.3
Melting Point	: 486 to 680 °F	Vapor Density/Pressure	: N / A
Solubility in Water	: Negligible	Evaporation Rate	: N / A

**Appearance and Odor** :

**Chemical Name** : Pb / Plumbum



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<b>Plastic</b>	:		
Impact Copolymer Grade		ASTM D1238	10 g / 10 min.
Melt Flow Rate		ASTM D792	0.9 g / cm <sup>3</sup>
Density		ASTM D648	104 °C
Solubility in Water		Negligible	

## SECTION TEN - STABILITY AND REACTIVITY

**Stability** : Stable

### Condition to avoid:

Contact with metal may release explosive hydrogen gas if Dry Charged Batteries already filled with electrolyte

### Incompatibility (Materials to Avoid):

Strong alkali materials, carbides, chlorates, nitrates, and pirates, organic acid, acetates, anhydrates, metals.

### Hazardous Decompositions of By-Products:

Thermal decomposition or combustion may produce a sulfur trioxide and/or sulfur dioxide.

**Hazardous Polymerization:** will not occur

## SECTION ELEVEN - TOXICOLOGICAL INFORMATION

### Effects of Chronic Exposure

- Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure.
- Ample evidence exists that developmental disorders are directly caused by human exposure to the material.
- Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.
- Long-term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
- Lead, in large amounts, can affect the blood, nervous system, heart, glands, immune system and digestive system. Anemia may occur.
- Lead can cross the placenta, and cause miscarriage, stillbirths and birth defects. Exposure before birth can cause mental retardation, behavioral disorders and infant death.
- Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
- Lead can accumulate in the skeleton for a very long time. Endocrine system. Increased levels of lead result in increased brain damage, coma and death in extreme cases.
- Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
- Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.



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- Lead can cross the placenta, and cause miscarriage, stillbirths and birth defects. Exposure before birth can cause mental retardation, behavioral disorders and infant death.
- Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
- Ample evidence exists that developmental disorders are directly caused by human exposure to the material.
- Lead can accumulate in the skeleton for a very long time.

## SECTION TWELVE - ECOLOGICAL CONSIDERATION

The product has no effect on the environment unless finely divided form. Lead is taken from soil by plants and can be concentrated in the food chain.

It is also relatively mobile in aquatic environment and can be concentrated by aquatic organism.

Acute toxicity data for fresh water animal is:

Fish	: 0.18 to 32 mg Pb / L
Crustaceans	: 0.5 mg Pb / L

## SECTION THIRTEEN - DISPOSAL CONSIDERATION

- Dispose in accordance with all applicable federal, state, and local regulations.
- The contents of this battery, as a waste, may be regulated by the Resource Conservation and Recovery Act (RCRA):  
As a D008 (Lead) and D002 (Corrosive) hazardous waste.
- Send to a secondary lead smelter for recycling. Refer to local regulation.
- **THIS SHEET MUST BE PASSED TO ANY SCRAP DEALER OR SMELTER WHEN THE BATTERY IS RESOLD**

## SECTION FOURTEEN - TRANSPORTATION INFORMATION

<b>U.S.DOT</b>	: The transportation of wet batteries (those batteries that contain electrolyte) are regulated by the U.S.DOT as a hazardous material
<b>IATA</b>	: The international transportation of wet batteries are regulated by the International Air Transport Association (IATA) as a hazardous material
<b>IMDG</b>	: The international transportation of wet batteries are regulated by the International maritime Dangerous Goods Code (IMDG) as a hazardous material

## SECTION FIFTEEN - REGULATORY INFORMATION

<b>Shipping Name</b>	: Battery, Dry
<b>Identification Number</b>	: N/ A, non-assigned
<b>Hazard Class</b>	: Applicable to 49CFR 172.101 Hazardous Material and subject to Parts 170-189 of this Sub-chapter
<b>RCRA</b>	: Spent lead-acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulations may vary
<b>Hazard Rating Lead</b>	
Health (Blue)	3
Flammability (Red)	0
Reactivity (Yellow)	0



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### SECTION SIXTEEN - OTHER REGULATORY INFORMATION

Refer to the latest revision of the OSHA general Industry Standards, 29 CFR 1910. Information about the hazardous ingredients contained in lead compounds are shown in Subpart Z – Toxic and Hazardous Substances: antimony is discussed in 1910.1000, air contaminants; inorganic arsenic is covered in the Inorganic Arsenic Standard, 1910.1018; and inorganic lead is covered in the Inorganic Lead Standard, 1910.1025

- a) EPCRA Section 312 Tier 2 reporting is required for batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. or more.
- b) Supplier Notification: This product contains toxic chemicals, which may be reportable under
- c) EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to

<u>Toxic Chemical</u>	<u>CAS Number</u>	<u>Approx. % by Weight</u>
Lead	7349-92-1	53%
• Antimony	7440-36-0	0.25%
• Arsenic	7440-38-2	0.003%

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year. The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

YHI Corporation (S) Pte Ltd, supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's).