		Document No.	Revision No.
Philippine Batteries Incorporated	**SAFETY DATA SHEET**	PE-EM-08-A	07
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		July 26, 2022	08

ENVIRONMENTAL & SAFETY DEPARTMENT

SECTION 1. MATERIAL IDENTIFICATION

Chemical/Trade Name	Chemical Family/Classification		Synonyms/Common Name
Lead Acid Battery	**Electric Storage Battery**		**Automotive Battery**

Manufacturer's Name	Emergency Telephone Number	Telephone Number for Information
Philippine Batteries, Incorporated	**(632) 299-6300**	**(632) 299-6300**

Address
Sta. Maria Industrial Park, Sta. Maria, Bulacan, Philippines

SECTION 2. HAZARD IDENTIFICATION

Note: Under normal conditions of battery use, internal components will not present a health hazard. The following information is provided for battery electrolyte (acid) and lead for exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire.

Routes and Methods of Entry

Inhalation
Acid mist generated during battery formation may cause respiratory irritation. Spillage of acid from batteries in confined areas may also lead to exposure to sulfuric acid mist.

Skin Contact
Battery electrolyte (acid) may cause irritative contact dermatitis.

Skin Absorption
Skin absorption is not a significant route of entry.

Eye Contact
Battery electrolyte (acid) will irritate eyes upon contact.

Ingestion
Hands contaminated by contact with internal compounds of a battery can cause ingestion of lead/lead compounds. Hands should be washed prior to eating, drinking, or smoking.

Carcinogenicity
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 ACGIH has classified "strong inorganic acid mist containing sulfuric acid" as an A2 carcinogen (suspected human carcinogen). These classifications do 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.
The IARC study classified lead as a 2B (possibly carcinogenic to humans).

Signs and Symptoms of Over Exposure

Acute Effects
Acute effects of overexposure to lead compounds are GI (gastrointestinal) upset, loss of appetite, diarrhea, constipation with cramping, difficulty in sleeping, and fatigue. Exposure and/or contact with battery electrolyte (acid) may lead to acute irritation of the skin, corneal damage of the eyes, and irritation of the mucous membranes of the eyes and upper respiratory system, including lungs.

Chronic Effects
Lead and its compounds may cause chronic anemia, damage to the kidneys and nervous system, Lead may also cause reproductive system damage and can affect developing fetuses in pregnant women. Battery electrolyte (acid) may lead to scarring of the cornea, chronic bronchitis, as well as erosion of tooth enamel in mouth breathers in repeated exposures.

Medical Conditions Generally Aggravated by Exposure
Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and neurologic diseases. Contact of battery electrolyte (acid) with the skin may aggravate diseases such as eczema and contact dermatitis.

SECTION 3. COMPOSITION INFORMATION

Material	% by Wt.	CAS Number	Eight Hour Exposure Limits		
			OSHA PEL	ACGIH TLV	Other
Chemical Name **Lead** / Trade Name **Lead**	60	7439-92-1	0.05 mg/m^3	0.05 mg/m^3	NIOSH PEL 0.1 mg/m^3
Chemical Name **Sulfuric Acid (35%)** / Trade Name **Battery Electrolyte (Acid)**	30	7664-93-9	1 mg/m^3	1 ug/m^3 (STEL) 50 ug/m^3 (15 min. max./ 8 hr. shift)	NIOSH PEL 1 mg/m^3
Chemical Name **Polyropylene** / Trade Name **PP**	10	9003-07-0	None listed		

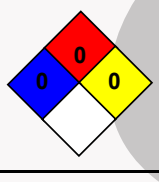
1. Classification of the substance:
1.1 Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]
8B: Non flammable corrosive materials
1.2 Classification according to 67/548 67/548/EEC or 1999/45/EC
Xi: Irritating
C: Corrosive
2. Label elements:
2.1 Labeling according to Regulation (EC) No 1272/2008
Product Identifier: Lead Acid Battery
Hazard pictograms:

C: Corrosive

Xi: Irritating

WHMIS
Signal word: ***CAUTION***
Hazard statements: ***Contact with internal components may causes irritation or severe burns***
Irritating to eyes, respiratory system and skin
Precautionary statements: ***Avoid contact with internal acid***
Avoid heat, sparks, and open flame while charging batteries
Keep containers tightly closed
Keep out reach of children

NFPA Hazard Rating:



Flammability (Red) = 0
Health (Blue) = 0
Reactivity = 0
Sulfuric acid is water -reactive if concentrated

SECTION 4. FIRST AID MEASURE

Inhalation
Remove from exposure and consult a physician if any of the acute effects listed above develop.

Skin
Wash thoroughly with soap and water. If acid is splashed on clothing, remove and discard. If acid is splashed in shoes, remove them immediately and discard. Acid cannot be removed from leather.

Eyes
IMMEDIATELY rinse with cool running water for at least 15 minutes. Seek medical attention after rinsing.

Ingestion
Lead/lead compounds : Consult a physician.
Battery Electrolyte (Acid): Do not induce vomiting. Refer to a physician immediately.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing Media
Dry chemical, foam, or CO_2

Flammable Limits in Air, % by Vol.
LEL - 4.1 UEL - 74.2 (Hydrogen)

Flash Point
253°C (Hydrogen)

Unusual Fire and Explosion Hazard
Hydrogen and oxygen gases are produced in the cells during normal battery operations; hydrogen is flammable and oxygen supports combustion. These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.

Special 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 nut note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shutdown.

SECTION 6.ACCIDENTAL RELEASE MEASURES

Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate or quicklime (calcium oxide). Cover spill with either chemical. Mix well. Make certain the mixture is neutral, then collect residue and place in a drum or other suitable container. Dispose of as a hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag.
Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves.

DO NOT RELEASE UNNEUTRALIZED ACID!

SECTION 7. HANDLING AND STORAGE

Store batteries under roof in cool, dry, well-ventillated area that is separated from incompatible materials and from activities which may create flames, sparks or heat. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short circuit. Single batteries pose no risk of electrical shock but there may be increasing risk of electrical shock from strings of connected batteries exceeding three 12 volt units.

An eyewash fountain and safety shower should be located in or near the production or storage area(s) for lead/lead acid batteries. Such storage areas should be equipped with a containment facility which captures acid spills so that they may be neutralized, collected, and disposed of properly.

Charging
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventillated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

Hygiene Practices
Wash hands thoroughly before eating, drinking, or smoking after handling batteries.

SECTION 8. CONTROL MEASURES

Engineering Controls

Store lead acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space. If mechanical ventillation is used, components must be acid resistant. Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries. Follow all manufacturer's recommendations when stacking and palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the battery. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the battery.

Personal Protective Equipment

Respiratory Protection

None required under normal handling conditions. During battery formation (high rate charge condition), acid mist can be generated, which may cause respiratory irritation. If irritation occurs, wear a respirator suitable for protection against acid mist.

Eye and Face

Chemical splash goggles are preferred. Also acceptable are "Visor-Gogs" or a chemical face shield worn over safety glasses with solid side shields.

Hands, Arms, and Body

Vinyl-coated, PVC, gauntlet type gloves with round finish.

Other Special Clothing and Equipment

Safety shoes worn with rubber or neoprene boots or steel-toed rubber or neoprene boots worn over socks. Place pants legs over boots to keep acid out of boots. All footwear must meet requirements of ANSI Z41.1 - Rev. 1972.

SECTION 9. PHYSICAL/CHEMICAL CHARACTERISTICS

Material is (at normal temperatures)	Specific Gravity (H20 = 1)	Melting Point
[x] **Solid** [x] **Liquid**	**Battery Electrolyte (Acid) 1.210 - 1.300**	**Lead 327.4^{0}C**
Boiling Point (at 760 mm Hg)	Vapor Pressure (mm Hg at 20^{0}C)	Vapor Density (Air = 1)
Lead 1755^{o}C Batt. **Electrolyte (Acid) 110-112^{o}C**	**Battery Electrolyte (Acid) 11.7**	**Battery Electrolyte (Acid) 3.4**

SECTION 9. PHYSICAL/CHEMICAL CHARACTERISTICS

Evaporation Rate (Butyl Acetate = 1)	% Volatile by Weight	Solubility in Water
Not Determined	**Not Determined**	**Lead and Lead Dioxide are not soluble. Battery Electrolyte (acid) is 100% miscible in water.**
Appearance and Odor		
Battery Electrolyte (acid) is a clear to cloudy liquid with slight acidic odor. Acid saturated lead oxide is a dark reddish-brown to gray solid w/ slight acidic odor.		

SECTION 10. REACTIVITY DATA

Stability	Conditions to Avoid
[ ] **Unstable** [x] **Stable**	**Sparks and other sources of ignition may ignite hydrogen gas.**

Incompatibility (Materials to Avoid)

Lead/lead compounds**: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur.**

Battery Electrolyte (Acid)**: Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates and fulminates.**

Hazardous Decomposition or Byproducts

Lead/lead compounds**: Oxides of lead and sulfur.**

Battery Electrolyte (Acid)**: Hydrogen, sulfur dioxide, sulfur trioxide.**

Hazardous Polymerization	Conditions to Avoid
[ ] **May Occur** [x] **Will Not Occur**	**High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.**

SECTION 11. TOXICOLOGICAL DATA

Acute Effects

Acute effects of overexposure to lead compounds are GI (gastrointestinal) upset, loss of appetite, diarrhea, constipation with cramping, difficulty in sleeping, and fatigue. Exposure and/or contact with battery electrolyte (acid) may lead to acute irritation of the skin, corneal damage of the eyes, and irritation of the mucous membranes of the eyes and upper respiratory system, including lungs.

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The IARC study classified lead as a 2B (possibly carcinogenic to humans).

Limit Values and Biological Exposure Indices.

Mutagenicity

Lead: Human mutation data recorded.

Reproductive Hazards

Lead: Severe toxicity can cause sterility, abortion and neonatal mortatality and morbidity. Expermental teratogen. Experminetal reproductive effects. Pathological lesions have been found on male gonads.

Sulfuric Acid: Experimental teratogen.

SECTION 12. ECOLOGICAL INFORMATION

Persistence and Degradability

Lead is very persistent in soils and sediments. No data available on biodegradation.

Bioaccumulative pottential (including mobility)

Mobility of lead between ecological compartments is low. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but very little bioaccumulation occurs through the food chain. Most studies have included lead compounds not solid inorganic lead.

Aquatic Toxicity

Sulfuric Acid:	24 Hours LC50, fresh water fish (Brachydanio rerio): 82 mg/L 96-Hour LOEC, fresh water fish (Cyprinus Carpio): 22 mg/L (lowest observable effect concentration)
Lead (metal):	No data available

Additional Information:

No known effects on stratospheric ozone depletion
Volatile organic compounds: 0% (by Volume)
Water endangering class (WGK): NA

SECTION 13. DISPOSAL METHOD

Waste Disposal Method

Battery Electrolyte (Acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as a hazardous waste.

DO NOT FLUSH LEAD-CONTAMINATED ACID INTO SEWER.

Batteries: Send to a lead smelter for reclamation following applicable Federal, state or local regulations.

SECTION 14. TRANSPORT INFORMATION

U.S. DOT

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (CFR 49). These regulations classify these types of batteries as a hazardous material. Refer to CFR 49, 173.159 for more details pertaining to the transportation of wet and moist batteries. The shipping information is as follows:
Proper Shipping Name: Batteries, wet, filled with acid
Hazardous class: 8
UN Identification: UN 2794
Packing Group: III
Label/ Placard required: Corrosive

IATA

The international transportation of wet and moist charged (moist active) batteries are regulated by the International Air Transportation Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 800. The shipping information is as follows:
Proper Shipping Name: Batteries, wet, filled with acid
Hazardous class: 8
UN Identification: UN 2794
Packing Group: III
Label/ Placard required: Corrosive

SECTION 14. TRANSPORT INFORMATION (continuation)

IMDG

The international transportation of wet and moist charged (moist active) batteries are regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as hazardous material. The batteries must be packed according to IATA Packing Instruction 800. The shipping information is as follows:
Proper Shipping Name: Batteries, wet, filled with acid
Hazardous class: 8
UN Identification: UN 2794
Packing Group: III
Label/ Placard required: Corrosive

SECTION 15. REGULATORY INFORMATION

RCRA
Spent lead acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity)

TSCA
Each ingredient listed in Section 3 of this SDS is also listed in the TSCA Registry.

CERCLA (Superfund) and EPCRA

(a) Reportable quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfun) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

(b) Spilled sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs.

(c) EPCRA Section 302 notification is required if 1,000 lbs or more sulfuric acid is present at one site. An average automotive/ commercial battery contains approximately 5 lbs of sulfuric acid. Contact your battery sales representative for additional information.

(d) EPCRA Section 312 Tier Two reporting is required for non-automotive 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.

(e) Supplier Notification:
This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Ammendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical	CAS	Percent by Weight
Lead	7439-92-1	60%
Sulfuric Acid	7664-93-9	30%

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

Note: The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

SECTION 15. REGULATORY INFORMATION (continued)

Philippine Regulations
Spent lead acid batteries are considered as hazardous waste classified as D406 (Inorganic chemical with Lead).

SECTION 16. OTHER INFORMATION

Philippine Batteries, Inc. provides this information in this SDS in good faith.
However, Philippine Batteries makes no representation as to its comprehensiveness or accuracy.
This SDS is intended, as a guide, for the appropriate precautionary handling of the material by a properly trained person using it.

Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular process. Philippine Batteries will not accept responsibility for damages resulting from use or reliance upon this information.