AFIKIM ELECTRIC VEHICLES
[illegible] Afikim 15148, Israel
[illegible]
[illegible]
[illegible]
www.afiscooters.com

10/02/08

To whom it concern :

We hereby certify that ,

The battery in the "GOGO " scooter by Pride company' are Sealed lead acid batteries type .

See attached full declaration of Pride.

Afikim Ekectric mobilizers

Marketing Department.

רכב חשמלי אפיקים
אגש"ח בע"מ
מחלקת שיווק

IM ELECTRIC VEHICLES
ulz Afikim 15148, Israel
: +972-4-6754814
: +972-4-6751456
ail: mailbox@afiscooters.com
w.afiscooters.com

THE STANDARDS INSTITUTION OF ISRAEL

10/02/09

To whom it concern :

We hereby certify that , 4L-2 / 4L-3

The battery in the "Caddy " scooter are Sealed lead acid batteries type .

See attached full declaration of Ztong Yee industrial Co.,Ltd.

Regards ,

Amnon Haviv.

Technical manager.

MAT[illegible]RIAL SAFETY DATA SHEET

FOR

S[illegible]ALED LEAD-ACID BATTERY

SECTION1: PRODU[illegible]S & COMPANY IDENTIFICATION

PRODUCT NAME: VALVE [illegible]EGULATED SEALED LEAD ACID RECHARGEABLE BATTERY
MANUFACTURER'S NAME: SHENZHEN SUNNYWAY BATTERY TECH CO.,LTD.
MANUFACTURER'S ADDR[illegible]SS: NO.2.3.6.9 BUILDINGS,ZHUKENG INDUSRIAL PARK ,PINGSHAN,SHENZHEN P.R. CHINA
TELEPHONE NUMBER: (+[illegible]6-755) 8463 0339(10 LINES) 84630908
FACSIMILE NUMBER: (+[illegible]-755) 8463 0114

SECTION2: HAZ[illegible]RDOUS COMPONENTS, PHYSI[illegible]AL DATA, FLAMMABILITY DAT[illegible], FIRST AID, REACTIVITY DATA

HAZARDOUS COMPON[illegible]NTS

COMPONENTS	%W[illegible]T	TLV	LD50 ORAL	LC50 INHALATION	LC50 CONTACT
Lead (Pb, PbO2, PbSO4)	Abo[illegible] 70%	N/A	(500) mg/Kg	N/A	N/A
Sulfuric Acid	Abo[illegible] 20%	1 mg/m3	(2,140) mg/Kg	N/A	N/A
Fiberglass Separator	Ab[illegible] [illegible]%	N/A	N/A	N/A	N/A
ABS	Ab[illegible] [illegible]%	N/A	N/A	N/A	N/A

PHYSICAL DATA

COMPONENTS	DENSITY	MELTING POINT	SOLUBILITY (H2O)	ODOR	APPEARANCE
Lead	11.34	[illegible]7.4°C (Boiling)	None	None	Silver Gray Metal
Lead Sulfate	6.2	[illegible]78°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	[illegible]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

FLAMMABILITY DATA

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 > 2.40VPC)
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.

FIRST AID

SULFURIC ACID PRECAUTIONS

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

EYE CONTACT: Flush with water a... ...a doctor immediately.

Ingestion: Call the doctor and flood... ...with water, have the patient drink milk if patient is conscious... Do not give anything to the unconscious per...

REACTICITY DATA

CONDITIONS	...heated
STABILITY	...low at high temperatures
POLYMERIZATION	...not polymerize
INCOMPATIBILITY	...bustibles, strong bases, many organic compounds
DECOMPOSITION PRODUCTS	...ric dioxides, arsenic, hydrogen sulfide, hydrogen
CONDITIONS TO AVOID	...ntact, smoking, sparks, etc. in a battery charging area. Avoid mixing acid with ... ...r chemicals.

SECTION3: SPILL ... LEAK PROCEDURES, PROTECTION, ELECTRICAL SAFETY, HEALTH HA... ...RD DATA

SPILL OR LEAK PROCE... ...RES

ACTION TAKEN FOR THE LEAKA... ...E SPILLS

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

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

WASTE DISPOSAL METHOD:

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

PROTECTION

EXPOSURE	PROTEC... ...R	COMMENTS
SKIN	Rubber gloves, ...ots	Protective equipment must be worn if battery is cracked or otherwise damaged.
RESPIRATORY	Respirator (for ... ...d)	A respirator should be worn during system operations if the TLV is exceeded.
EYES	Safety goggles, ...shield	

ELECTRICAL SAFETY

Due to the battery's low internal re... ...ance and high power density. High levels of short circuit can be developed across the battery terminals. Do not put tools or cable... ...n the battery. Use insulated tools only. Strictly follow all the instructions for installation and diagrams when installing or maint... ...g battery systems.

HEALTH HAZARD DATA

LEAD: The toxic effects of lead [illegible] ingestion and absorption [illegible] It affects the [illegible] kidneys and central nervous system.

The symptoms of lead overexposure are anemia, vomiting, headache, stomach pain [illegible] dizziness, loss of appetite, and muscle and joint [illegible]. 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 [illegible] corrosive. Contact with acid can cause severe burns on the skin and in the eyes.

Ingestion of sulfuric acid will cause [illegible] burns. Acid can be released if the battery case is damaged or if the vents are tampered with.

FIBERGLASS SEPARATOR: Fibrous [illegible] is an irritant of the upper respiratory tract, skin and eyes. Please use the [illegible] protective [illegible] if necessary.

SECTION4: Transportation information

Acceptable modes of transportation: [illegible] rail, road and water.

Batteries must be protected so as to prevent short circuit and must be securely packed and marked on the container "Non-Spillable".

SECTION5: PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures:

Stop flow of material. Contain [illegible] small spills with dry sand, earth, and vermiculite. [illegible] combustible materials if possible. Carefully [illegible] 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.

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 [illegible] environmental agency and/or federal EPA.

Handling and Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should 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

SECTION6: CONTROL MEASURES

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 av[illegible] spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective e[illegible] when filling or handling batteries.

Respiratory Protection:

None required under normal c[illegible]. When concentrations of sulfuric acid mist are known to exceed PEL use NIOSH or MSHA-approved [illegible]piratory protection.

Protective Gloves:

Rubber or plastic acid-resistant [illegible]ves with elbow-length gauntlet.

Eye Protection:

Chemical goggles or face shield.

Other Protection:

Acid-resistant apron. Under se[illegible] exposure or emergency conditions, wear acid-resistant clothing and boots.

Emergency Flushing:

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

K2 Energy Solutions, Inc.
1125 American Pacific Drive, Suite C Henderson, NV 89074
(702) 478-3590 www.k2battery.com

March 13, 2009

Certificate of Compliance

Product Number/Name/Description:

LFP 200ES (Lithium Ion Battery Pack)

12.8V 16Ahr 4s5p Configuration

The undersigned, on behalf of K2 Energy Solutions, does herby certify that the product listed above is compliant to:

The testing requirements for Lithium Batteries in Section 38.3; Part III; of the UN Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, Fourth revised edition;[ST/SG/AC.10/11/Rev.4].

_____

Trevor Hughes
Quality Manager
K2 Energy Solutions, Inc.

維洋科技股份有限公司
Mobile Energy Technology Co., Ltd
No. 13, Kong 9th Road, 2nd Industrial Park, Linkou District, New TainanTaipei City 24452, Taiwan R.O.C.
Tel：(02)2601-0385 Fax：(02)2601-0460
E-mail：sales@metco.com.tw

MATERIAL SAFETY DATA SHEET

IDENTITY	Product Category	:	Rechargeable Li-ion Battery Pack
	Model Name	:	HT-01B
	Brand	:	
	Rated Capacity	:	10.88Ah
	Rated Voltage	:	25.2V
	Watt-hour	:	274.4Wh
	Chemical System	:	Lithium Nickel Manganese Cobalt oxide
	Designed for Recharge	:	■Yes □No

SECTION 1 MANUFACTURER'S INFORMATION

Manufacturer's Name	:	Mobile Energy Technology Co.,Ltd.
Supplier's Name	:	Mobile Energy Technology Co.,Ltd.
Supplier's Address	:	#13, Kong 9th Road, 2nd Industrial Park, Linkou District, New Taipei City, Taiwan, R.O.C 24452
Information Telephone	:	886-2-2601-0385
Emergency Telephone	:	886-2-2601-0460
Date Prepared	:	2013/06/20

SECTION 2 MATERIALS AND INGREDIENTS INFORMATION

Battery Cell:

Substance	:	Lithium ion rechargeable cell	
CAS number	:	Not specified	
Composition	:	Positive electrode: Lithium Nickel Manganese Cobalt oxide	20-40wt%
		Negative electrode: Carbon	10-20wt%
		Electrolyte: Organic electrolyte mainly composed of alkyl carbonate	10-20wt%

No. 13, Kong 9th Road, 2nd Industrial Park, Linkou District, New TainanTaipei City 24452, Taiwan R.O.C.
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Circuit Module：

HAZARDOUS INGREDIENTS	%	CAS number
Lead	<0.1	7439-92-1
Mercury	0	7439-97-6
Chromium	0	7440-47-3
Cadmium	0	7440-43-9

Plastic Parts：

HAZARDOUS INGREDIENTS	%	CAS number
Lead	<0.1	7439-92-1
Nickel	<0.01	7440-02-0
CFCs	0	75-69-4
Polychlorinated Biphenyls	0	1336-36-3

SECTION 3 HAZARDS AND TOXICITY CLASS

Class name	:	Not applicable for regulated class
Hazard	:	It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
Toxicity	:	Vapor generated from burning batteries, may make eyes, skin and throat irritate.

SECTION 4 FIRST-AID MEASURES

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact	:	Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.
Skin contact	:	Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation	:	Remove to fresh air immediately. Take a medical treatment.

A battery cell and spilled internal cell materials

- **Ingestion:**

Make the victim vomit. When it is impossible or the feeling is not well after vomiting, seek medical attention.

維洋科技股份有限公司
Mobile Energy Technology Co., Ltd
No. 13, Kong 9th Road, 2nd Industrial Park, Linkou District, New TainanTaipei City 24452, Taiwan R.O.C.
Tel：(02)2601-0385 Fax：(02)2601-0460
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SECTION 5 FIRE-FIGHTING MEASURE

Extinguishing method	:	Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
Fire extinguishing agent	:	Plenty of water and alcohol-resistant foam are effective.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Internal cell materials, such as electrolyte leaked from battery cell, are carefully dealt with according to the followings.

- Personal precautions :
  Remove leaked materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.
- Environmental precautions: Do not throw out into the environment.
- Method of cleaning up: The leaked solid is moved to a container. The leaked place is wiped off with dry cloth.
- Prevention of secondary hazards: Avoid re-scattering. Do not bring the collected materials close to fire.

SECTION 7 HANDLING AND STORAGE

- When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
- Do not let water penetrate into packaging boxes during their storage and transportation.
- The batteries will be stored at room temperature, charged to about 30－50% of capacity.
- Do not store the batteries in places of the high temperature exceeding 35 deg. C or under direct sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the batteries to condensation, water drop or not to store it under frozen condition.
- Batteries are sure to be packed in such a way as to prevent short circuits under conditions normally encountered in transport.
- Please avoid storing the battery in the places where it is exposed to the static electricity so that no damage will not be caused to the protection circuit of the battery pack.

SECTION 8 Exposure Control

Acceptable concentration	:	Not specified in ACGIH.
Facilities	:	Provide appropriate ventilation system such as local ventilator in the storage place.
Protective clothing	:	Gas mask for organic gases, safety goggle, safety glove.

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SECTION 9 Stability and Reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product.
As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

SECTION 10 Toxicological Information

Acute toxicity	：	Oral（rat）LD50 >2g/kg (estimated)
Irritation	：	Irritating to eyes and skin.
Mutagenicity	：	Not specified.
Chronic toxicity		Not specified.

SECTION 11 Ecological Information

- In case of the worn-out battery was disposed in land, the cell case may be corroded, and leak electrolyte. But, we have no ecological information.
- Mercury(Hg) and Cadmium(Cd) are neither contained nor used in cell

SECTION 12 Disposal Considerations

- When the battery is worn out, dispose of it under the ordinance of each local government or the low issued by relating government.
- Disposal of the worn-out battery may be subjected to Collection and Recycling Regulation.

SECTION 13 Transport information

Lithium ion batteries containing more than 1.0g/cell and 2.0g/battery pack and also power is more than 20Wh/cell and 100Wh/battery pack of lithium can be treated as "dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.
The Lithium Ion batteries are considered to be "Rechargeable batteries" and meet the requirements of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) Dangerous Goods Regulations (54th Edition, Package instruction 965, 968 section IA, 966, 967, 969 and 970 section I for lithium ion batteries belong to dangerous goods. Special Provision A88, A99, A154, A164, A181, 182, A183, A185 belong to non-dangerous goods.

維洋科技股份有限公司
Mobile Energy Technology Co., Ltd
No. 13, Kong 9th Road, 2nd Industrial Park, Linkou District, New TainanTaipei City 24452, Taiwan R.O.C.
Tel：(02)2601-0385 Fax：(02)2601-0460
E-mail：sales@metco.com.tw

SECTION 14 REGULATORY INFORMATION

Regulations specifically applicable to the product：

- The transport of the lithium batteries is regulated by the United Nations, "Model Regulations on Transport of Dangerous Goods".
- Lithium batteries are subject to shipping requirements exceptions under 49 CFR 173.185(paragraph c).
- Shipping of Lithium batteries in aircrafts are regulated by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) requirements in Special Provision "A48".
- Shipping of lithium batteries on sea are regulated the International Maritime Dangerous Goods (IMDG) requirements of UN 3480.
- The internal component (thinly chloride) is hazardous under the criteria of the Federal OHSA Hazard Communication Standard 29 CFR 190.1200.

SECTION 15 SPECIAL PROTECTION INFORMATION

Respiratory Protection	:	Not necessary under normal use.
Ventilation	:	Not necessary under normal use.
Eye Protection	:	Not necessary under normal use.
Protective Gloves	:	Not necessary under normal use.

SECTION 16 OTHER INFORMATION

Manufacturer's Name	:	Mobile Energy Technology Co.,Ltd.
Supplier's Name	:	Mobile Energy Technology Co.,Ltd.
Supplier's Address	:	#13, Kong 9th Road, 2nd Industrial Park, Linkou District, New Taipei City, Taiwan, R.O.C 24452
Information Telephone	:	886-2-2601-0385
Emergency Telephone	:	886-2-2601-0460
Date Prepared	:	2013/06/20

Pack Safe

Wheelchairs and mobility devices with lithium ion batteries, collapsible design, battery removed

Electric wheelchair, mobility scooter

This description is for a wheelchair or mobility device that does not have a protective housing for its lithium ion battery. Lithium ion battery size is limited to 300 watt hours (Wh) or 25 grams equivalent lithium content (ELC). One spare battery not exceeding 300 Wh or two spare batteries not exceeding 160 Wh (13.5 grams ELC) each may be carried in carry-on baggage.

Lithium metal (non-rechargeable lithium) batteries are forbidden with these devices.

Lithium ion batteries must be removed from this type of mobility device and battery terminals protected from short circuit. The lithium ion batteries must be carried in carry-on baggage only. The passenger must advise the airline of the battery location. The airline must notify the Pilot-in-command of the battery location in the cabin.

For complete passenger instructions contact your airline. Advance arrangements and extra check-in time may be necessary.

Though allowable, airlines may not be able to accommodate the folded-up wheelchair/device in the passenger cabin. The device, with batteries removed, may travel as checked baggage.

See 49 CFR 175.10(a)(17) for additional requirements and conditions.

(below)

(15) A wheelchair or other battery-powered mobility aid equipped with a nonspillable battery or a dry sealed battery when carried as checked baggage, provided—

(i) The battery conforms to the requirements of §173.159a(d) of this subchapter for non-spillable batteries;

(ii) The battery conforms to the requirements of §172.102(c)(1), Special provision 130 of this subchapter for dry sealed batteries, as applicable;

(iii) Visual inspection including removal of the battery, where necessary, reveals no obvious defects (removal of the battery from the housing should be performed by qualified airline personnel only);

(iv) The battery is disconnected and the battery terminals are protected to prevent short circuits, unless the wheelchair or mobility aid design provides an effective means of preventing unintentional activation, and

(v) The battery is—

(A) Securely attached to the wheelchair or mobility aid;

(B) Is removed and placed in a strong, rigid packaging marked “NONSPILLABLE BATTERY” (unless fully enclosed in a rigid housing that is properly marked);

(C) Is removed and placed in a strong, rigid packaging marked with the words “not restricted” in accordance with paragraph (c)(2) of §172.102, Special provision 130, of this subchapter; or

(D) Is handled in accordance with paragraph (a)(16)(iv) of this section.

(17) A wheelchair or other mobility aid equipped with a lithium ion battery, when carried as checked baggage, provided—

(i) The lithium ion battery must be of a type that successfully passed each test in the UN Manual of Tests and Criteria (IBR; see §171.7 of this subchapter), as specified in §173.185 of this subchapter, unless approved by the Associate Administrator;

(ii) The operator must verify that:

(A) Visual inspection of the wheelchair or other mobility aid reveals no obvious defects;

(B) Battery terminals are protected from short circuits (e.g., enclosed within a battery housing);

(C) The battery must be securely attached to the mobility aid; and

(D) Electrical circuits are isolated;

(iii) The wheelchair or other mobility aid must be loaded and stowed in such a manner to prevent its unintentional activation and its battery must be protected from short circuiting;

(iv) The wheelchair or other mobility aid must be protected from damage by the movement of baggage, mail, service items, or other cargo;

(v) Where a lithium ion battery-powered wheelchair or other mobility aid is specifically designed to allow its battery to be removed by the user (e.g., collapsible):

(A) The battery must be removed from the wheelchair or other mobility aid according to instructions provided by the wheelchair or other mobility aid owner or its manufacturer;

(B) The battery must be carried in carry-on baggage only;

(C) Battery terminals must be protected from short circuits (by placement in original retail packaging or otherwise insulating the terminal e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch);

(D) The battery must not exceed 300 Watt-hour (Wh); and

(E) A maximum of one spare battery not exceeding 300 Wh or two spares not exceeding 160 Wh each may be carried;

(vi) The pilot-in-command is advised either orally or in writing, prior to departure, as to the location of the lithium ion battery or batteries aboard the aircraft.

1720 HAYDEN DRIVE
CARROLLTON, TX 75006
www.upgi.com

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F 469.892.1123

MATERIAL SAFETY DATA SHEET

Material Safety Data Sheets (MSDS) are a sub requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to the various subcategories including anything defined by OSHA as an "article" as an manufacturing item other than a fluid or particle: 1.) Which is formed to a specific shape or design during manufacture 2.) Which has end functions(s) dependent in the whole or in part upon its shape or design during end use 3.) Which under normal conditions of use does not more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempt from the requirements of Hazard Communication Standard, 29 CFR 1910.1200; hence a MSDS is not required.

The following components are found in a Universal Battery sealed lead acid battery:

		Weight Range:
Sulfuric Acid-Electrolyte	H_2SO_4	10-20%
Lead-Negative Electrode	Pb	30-60%
Lead Dioxide-Positive Electrode	PbO_2	5-25%
Lead Sulfate- Positive Electrode	$PbSO_4$	1-25%

The overall reaction is: $PbO_2 + Pb + 2H_2SO_4 \leftrightarrow 2PbSO_4 + 2H_2O$

Concentration of components depends on the state of charge and discharge and the battery size. The hazardous waste code for the lead acid batteries is D008. At the end of its useful life, please recycle this battery.

MATERIAL SAFETY DATA SHEET
VALVE REGULATED LEAD ACID BATTERY, NON-SPILLABLE
(US, CN, EU Version for International Trade)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Valve Regulated Lead Acid Battery**
OTHER PRODUCT NAMES: Gel: Absorbed Electrolyte Sealed; Valve-Regulated Non-Spillable Battery; Battery Non-Spillable 49 CFR 173.159(d)

MANUFACTURER: East Penn Manufacturing Company, Inc.
DIVISION: Deka Road
ADDRESS: Lyon Station, PA 19536 USA

EMERGENCY TELEPHONE NUMBERS:
US: CHEMTREC 1-800-424-9300
CN: CHEMTREC 1-800-424-9300
Outside US: +1-202-483-7616

NON-EMERGENCY HEALTH/SAFETY INFORMATION: +1-610-682-6361

CHEMICAL FAMILY: This product is a gel/absorbed electrolyte type lead acid storage battery.

PRODUCT USE: Industrial/Commercial electrical storage batteries.

This product is considered a Hazardous Substance, Preparation or Article that is regulated under US-OSHA; CAN-WHMIS; IOSH; ISO; UK-CHIP; or EU Directives (67/548/EEC-Dangerous Substance Labeling, 98/24/EC-Chemical Agents at Work, 99/45/EC-Preparation Labeling, 2001/58/EC-MSDS Content, and 1907/2006/EC-REACH), and an MSDS/SDS is required for this product considering that when used as recommended or intended, or under ordinary conditions, it may present a health and safety exposure or other hazard.

Additional Information
This product may not be compatible with all environments, such as those containing liquid solvents or extreme temperature or pressure. Please request information if considering use under extreme conditions or use beyond current product labeling.

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification:

Health	Environmental	Physical
Acute Toxicity – Not listed (NL) Eye Corrosion – Corrosive* Skin Corrosion – Corrosive* Skin Sensitization – NL Mutagenicity/Carcinogenicity – NL Reproductive/Developmental – NL Target Organ Toxicity (Repeated) – NL	Aquatic Toxicity – NL	NFPA – Flammable gas, hydrogen (during charging) CN - NL EU - NL

*as sulfuric acid

GHS Label: Valve Regulated Lead Acid Gel Battery, Non-Spillable

Symbols: C (Corrosive)

Hazard Statements	**Precautionary Statements**
Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin.	Keep out of reach of children. Keep containers tightly closed. Avoid heat, sparks, and open flame while charging batteries. Avoid contact with internal acid/ gel.

MATERIAL SAFETY DATA SHEET
VALVE REGULATED LEAD ACID BATTERY, NON-SPILLABLE
(US, CN, EU Version for International Trade)

EMERGENCY OVERVIEW: May form explosive air/gas mixture during charging. Contact with internal components may cause irritation of severe burns. Irritating to eyes, respiratory system, and skin. Prolonged inhalation or ingestion may result in serious damage to health. Pregnant women exposed to internal components may experience reproductive/developmental effects.

POTENTIAL HEALTH EFFECTS:

EYES: Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.

SKIN: Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.

INGESTION: Swallowing this product may cause severe burns to the esophagus and digestive tract and harmful or fatal lead poisoning. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.

INHALATION: Respiratory tract irritation and possible long term effects.

ACUTE HEALTH HAZARDS:
Repeated or prolonged contact may cause mild skin irritation.

CHRONIC HEALTH HAZARDS:
Lead poisoning if persons are exposed to internal components of the batteries. Lead absorption may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, pain in the arms, legs and joints. Other effects may include central nervous system damage, kidney dysfunction, and potential reproductive effects. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
Respiratory and skin diseases may predispose one to acute and chronic effects of sulfuric acid and/or lead. Children and pregnant women must be protected from lead exposure. Persons with kidney disease may be at increased risk of kidney failure.

Additional Information
No health effects are expected related to normal use of this product as sold.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS (Chemical/Common Names):	CAS No.:	% by Wt:	EC No.:
Lead, inorganic	7439-92-1	60-75 (average: 67)	231-100-4
Sulfuric acid	7664-93-9	5-15 (average: 10)	231-639-5
Antimony	7440-36-0	0-0.1 (average: <0.1)	231-146-5
Arsenic	7440-38-2	<0.1	231-148-6
Tin	7440-31-5	0-0.1 (average: <0.1)	231-141-8
Polypropylene	9003-07-0	2-10 (average: 4)	NA

NA – Not applicable/ND – Not determined

Additional Information
These ingredients reflect components of the finished product related to performance of the product as distributed into commerce.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Flush eyes with large amounts of water for at least 15 minutes. Seek immediate medical attention if eyes have been exposed directly to acid gel.

SKIN CONTACT: Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing. If symptoms persist, seek medical attention.

INGESTION: If swallowed, give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.

INHALATION: If breathing difficulties develop, remove person to fresh air. If symptoms persist, seek medical attention.

MATERIAL SAFETY DATA SHEET
VALVE REGULATED LEAD ACID BATTERY, NON-SPILLABLE
(US, CN, EU Version for International Trade)

SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE/UNSUITABLE EXTINGUISHING MEDIA:
Dry chemical, carbon dioxide, water, foam. Do not use water on live electrical circuits.

SPECIAL FIRE FIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:
Use appropriate media for surrounding fire. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use full protective equipment (bunker gear) and self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks excessive heat or open flames.
SPECIFIC HAZARDS IN CASE OF FIRE:
Thermal shock may cause battery case to crack open. Containers may explode when heated.

Additional Information
Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Avoid Contact with Skin. Neutralize any spilled electrolyte with neutralizing agents, such as soda ash, sodium bicarbonate, or very dilute sodium hydroxide solutions.
ENVIRONMENTAL PRECATIONS:
Prevent spilled material from entering sewers and waterways.
SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:
Add neutralizer/absorbent to spill area. Sweep or shovel spilled material and absorbent and place in approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.

Additional Information
Lead acid batteries and their plastic cases are recyclable. Contact your East Penn representative for recycling information.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING AND STORAGE:
- Keep containers tightly closed when not in use.
- If battery case is broken, avoid contact with internal components.
- Do not handle near heat, sparks, or open flames.
- Protect containers from physical damage to avoid leaks and spills.
- Place cardboard between layers of stacked batteries to avoid damage and short circuits.
- Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

OTHER PRECAUTIONS (e.g.; Incompatibilities):
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS/SYSTEM DESIGN INFORMATION:
Charge in areas with adequate ventilation.
VENTILATION:
General dilution ventilation is acceptable.
RESPIRATORY PROTECTION:
Not required for normal conditions of use. See also special firefighting procedures (Section 5).
EYE PROTECTION:
Wear protective glasses with side shields or goggles.
SKIN PROTECTION:

Wear chemical resistant gloves as a standard procedure to prevent skin contact.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: None required under normal use conditions for gel/absorbed electrolyte type batteries.
Wash hands after handling.
EXPOSURE GUIDELINES & LIMITS:

OSHA	Permissible Exposure Limit (PEL/TWA)	Lead, inorganic (as Pb)	0.05 mg/m^3
		Sulfuric acid	1 mg/m^3
		Antimony	0.5 mg/m^3
		Arsenic	0.01 mg/m^3
		Tin	2 mg/m^3
ACGIH	2007 Threshold Limit Value (TLV)	Lead, inorganic (as Pb)	0.05 mg/m^3
		Sulfuric acid	0.2 mg/m^3
		Antimony	0.5 mg/m^3
		Arsenic	0.01 mg/m^3
		Tin	2 mg/m^3
Quebec	Permissible Exposure Value (PEV)	Lead, inorganic (as Pb)	0.15 mg/m^3
		Sulfuric acid	1 mg/m^3 TWA 3 mg/m^3 STEV
		Antimony	0.5 mg/m^3
		Arsenic	0.1 mg/m^3
		Tin	2 mg/m^3
Ontario	Occupational Exposure Level (OEL)	Lead (designated substance)	0.10 mg/m^3
		Sulfuric acid	1 mg/m^3 TWAEV 3 mg/m^3 STEV
		Antimony	0.5 mg/m^3
		Arsenic (designated substance)	0.01 mg/m^3
		Tin	2 mg/m^3
Netherlands	Maximaal Aanvaarde Concentratie (MAC)	Lead, inorganic (as Pb)	0.15 mg/m^3
		Sulfuric acid	1 mg/m^3
Germany	Maximale Arbeitsplatzkonzentrationen (MAK)	Lead, inorganic (as Pb)	0.1 mg/m^3
		Sulfuric acid	1 mg/m^3 TWA 2 mg/m^3 STEL
		Antimony	0.5 mg/m^3
United Kingdom	Occupational Exposure Standard (OES)	Lead	0.15 mg/m^3
		Antimony	0.5 mg/m^3
		Arsenic	0.1 mg/m^3
		Tin	2 mg/m^3

TWA – 8-Hour Time Weighted Average/ STE – Short Term Exposure / mg/m^3 – milligrams per cubic meter of air/ NE – Not Established

Additional Information

- Batteries are housed in polypropylene cases which are regulated as total dust or respirable dust only when they are ground up during recycling. The OSHA PEL for dust is 15 mg/m^3 as total dust or 5 mg/m^3 as respirable dust.
- May be required to meet Domestic Requirements for a Specific Destination(s).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Industrial/commercial lead acid gel battery
ODOUR:	Odorless
ODOUR THRESHOLD:	NA
PHYSICAL STATE:	Sulfuric Acid, Gelatinous/ Lead, solid
pH:	<1
BOILING POINT:	235-240° F (as sulfuric acid)
MELTING POINT:	NA
FREEZING POINT:	NA
VAPOUR PRESSURE:	10 mmHg

VAPOUR DENSITY (AIR = 1):	> 1
SPECIFIC GRAVITY (H2O = 1):	1.27–1.33
EVAPORATION RATE (n-BuAc=1):	< 1
SOLUBILITY IN WATER:	100% (as sulfuric acid)
FLASH POINT:	Below room temperature (as hydrogen gas)
AUTO-IGNITION TEMPERATURE:	NA
LOWER EXPLOSIVE LIMIT (LEL):	4% (as hydrogen gas)
UPPER EXPLOSIVE LIMIT (UEL):	74% (as hydrogen gas)
PARTITION COEFFICIENT:	NA
VISCOSITY (poise @ 25° C):	Not Available
DECOMPOSITION TEMPERATURE:	Not Available

FLAMMABILITY/HMIS HAZARD CLASSIFICATIONS (US/CN/EU): As sulfuric acid
HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 2

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	This product is stable under normal conditions at ambient temperature.
INCOMPATIBILITY (MATERIAL TO AVOID):	Strong bases, combustible organic materials, reducing agents, finely divided metals, strong oxidizers, and water.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:	Thermal decomposition will produce sulfur dioxide, sulfur trioxide, carbon monoxide, sulfuric acid mist, and hydrogen.
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID:	Overcharging, sources of ignition

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY (Test Results Basis and Comments):
Sulfuric acid: LD_{50}, Rat: 21409 mg/kg
LC_{50}, Guinea pig: 510 mg/m^3
Lead: No data available for elemental lead

SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):
Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report that abnormal conduction velocities in person with blood lead levels of 50 µg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Additional Information
- Very little chronic toxicity data available for elemental lead.
- Lead is listed by IARC as a 2B carcinogen: possible carcinogen in humans. Arsenic is listed by IARC, ACGIH, and NTP as a carcinogen, based on studies with high doses over long periods of time. The other ingredients in this product, present at equal to or greater than 0.1% of the product, are not listed by OSHA, NTP, or IARC as suspect carcinogens.
- The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction. Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

SECTION 12: ECOLOGICAL INFORMATION

PERSISTENCE & DEGRADABILITY:
Lead is very persistent in soils and sediments. No data available on biodegradation.

BIO-ACCUMULATIVE POTENTIAL (Including Mobility):
Mobility of metallic 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 (Test Results & Comments):
Sulfuric acid: 24-hour LC_{50}, 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 CONSIDERATIONS

WASTE DISPOSAL METHOD: Lead acid batteries are recyclable when sent to a secondary lead smelter. Follow local, State/Provincial, and Federal/National regulations applicable to as-used, end-of-life characteristics to be determined by end-user.

HAZARDOUS WASTE CLASS/CODE: US - Not applicable to finished product as manufactured for distribution into commerce.
CN – Not applicable to finished product as manufactured for distribution into commerce.
EWC – Not applicable to finished product as manufactured for distribution into commerce.

Additional Information
Not Included – **Recycle** or dispose as allowed by local jurisdiction for the end-of-life characteristics as-disposed.

SECTION 14: TRANSPORT INFORMATION

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:
Proper Shipping Name Not regulated as a Hazardous Material

AIRCRAFT – ICAO-IATA:
Proper Shipping Name Not regulated as a Hazardous Material

VESSEL – IMO-IMDG:
Proper Shipping Name Not regulated as a Hazardous Material

Additional Information
- Each battery and the outer packaging must be plainly and durably marked “Nonspillable” or “Nonspillable Battery”
- Non-Spillable Battery complies with the provisions listed in 49 CFR 173.159(d), therefore must not be marked with an identification number or hazardous label and is not subject to hazardous shipping paper requirements.
- Transport requires proper packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.

SECTION 15: REGULATORY INFORMATION

INVENTORY STATUS:
All components are listed on the TSCA; EINECS/ELINCS; and DSL, unless noted otherwise below.

U.S. FEDERAL REGULATIONS:

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

TSCA Section 12b – Export Notification: If the finished product contains chemicals subject to TSCA Section 12b export notification, they are listed below:

Chemical	CAS #

None	NA

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)
Chemicals present in the product which could require reporting under the statute:

Chemical	CAS #
Lead	7439-92-1
Sulfuric acid	7664-93-9

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
The finished product contains chemicals subject to the reporting requirements of Section 313 of SARA Title III.

Chemical	CAS #	% wt
Lead	7439-92-1	67
Sulfuric acid	7664-93-9	10

CERCLA SECTION 311/312 HAZARD CATEGORIES: Note that the finished product is exempt from these regulations, but lead and sulfuric acid above the thresholds are reportable on Tier II reports.

Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No
Immediate Hazard	Yes (Internal acid gel is Corrosive)
Delayed Hazard	No

Sulfuric Acid is regulated as an Extremley Hazardous Substance.

STATE REGULATIONS (US):

California Proposition 65
The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects, or other reproductive harm:

Chemical	CAS #	% Wt
Arsenic (as arsenic oxides)	7440-38-2	<0.1
Strong inorganic acid mists including sulfuric acid	NA	10
Lead	7439-92-1	67

California Consumer Product Volatile Organic Compound Emissions
This Product is not regulated as a Consumer Product for purposes of CARB/OTC VOC Regulations, as-sold for the intended purpose and into the industrial/Commercial supply chain.

INTERNATIONAL REGULATIONS (Non-US):

Canadian Domestic Substance List (DSL)
All ingredients remaining in the finished product as distributed into commerce are included on the Domestic Substances List.

WHMIS Classifications
Class E: Corrosive materials present at greater than 1%
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Controlled Products Regulations.

NPRI and Ontario Regulation 127/01
This product contains the following chemicals subject to the reporting requirements of Canada NPRI +/or Ont. Reg. 127/01:

Chemical	CAS #	% Wt
Lead	7439-92-1	67
Sulfuric acid	7664-93-9	10

European Inventory of Existing Commercial Chemical Substances (EINECS)
All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

European Communities (EC) Hazard Classification according to directives 67/548/EEC and 1999/45/EC.

R-Phrases	S-Phrases
35, 36, 38	1/2, 26, 30, 45

Additional Information
This product may be subject to Restriction of Hazardous Substances (RoHS) regulations in Europe and China, or may be

regulated under additional regulations and laws not identified above, such as for uses other than described or as-designed/as-intended by the manufacturer, or for distribution into specific domestic destinations.

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:
Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).
Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

SOURCES OF INFORMATION:
International Agency for Research on Cancer (1987), *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7, Lyon,* France.
Ontario Ministry of Labour Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.
RTECS – Registry of Toxic Effects of Chemical Substances, National institute for Occupational Safety and Health.

MSDS/SDS PREPARATION INFORMATION:
DATE OF ISSUE: ***6 August 2007*** SUPERCEDES: ***29 January 2007***

DISCLAIMER:
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