

1. PRODUCT IDENTIFICATION			CHEMICAL RESPONSE CARD: 81				
1.1	Product Name:	BATTERY	RESPONSE TEAM PPE:				
1.2	Chemical Name:	Acid/Corrosive					
1.3	Synonyms:	None reported by the manufacturer	WHMIS:				
1.4	Trade Names:	Battery					
1.5	Product Use:	Automotive Battery	HEALTH: 3				
1.6	Manufacturer's Name:	East Penn Manufacturing Co., Inc.	FLAMMABILITY: 0				
1.7	Manufacturer's Address:	Deka Road, Lyon Station, PA 19536 USA	REACTIVITY: 2				
1.8	Business Phone:	+1 (610) 682-6361	PERSONAL PROTECTION: B				
1.9	Emergency Phone:	CHEMTREC +1 (800) 527-3887 / +1 (703) 527-3887					

2. HAZARD IDENTIFICATION

2.1	<p>Hazard Identification: Danger! Poison! Electrolyte solution is harmful by all routes of exposure! Corrosive to all tissues. Severe burns, corneal damage, and possibly blindness can result in direct contact with electrolyte solution. Charged batteries will release Hydrogen, a flammable gas. Overcharged batteries may release sulfuric acid mist. This product is classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1088 (2004) and ADG Code (Australia).</p>						
2.2	Routes of Entry:	Inhalation:	YES	Absorption:	YES	Ingestion:	NO
2.3	<p>Effects of Exposure: EYES: Severe irritation, corneal damage, and possible blindness will result in direct contact. SKIN: Severe irritation, burns, ulcerations, and contact dermatitis can result from direct contact. INGESTION: Severe irritation of the mouth, throat, esophagus, and stomach. Acute ingestion of lead may cause abdominal distress, which can rapidly lead to systemic toxicity. INHALATION: Severe respiratory irritation (from vapors or mists) is possible. Inhalation of lead fumes can cause upper respiratory tract and lung irritation.</p>						
2.4	<p>Symptoms of Exposure: EYES: Stinging or burning sensation, watering, and redness. SKIN: Stinging or burning, redness, and dermatitis (rash). INGESTION: Severe irritation of the mouth, throat, esophagus, and stomach. Gastrointestinal discomfort, nausea, vomiting, cramping, and diarrhea. INHALATION: Upper respiratory irritation, headache, irritability, and an inability to sleep.</p>						
2.5	<p>Acute Health Effects: EYES: Severe irritation, corneal damage, and possible blindness will result in direct contact. SKIN: Severe irritation, burns, ulcerations, and contact dermatitis can result from direct contact. INGESTION: Severe irritation of the mouth, throat, esophagus, and stomach. Acute ingestion of lead may cause abdominal distress, which can rapidly lead to systemic toxicity. INHALATION: Severe respiratory irritation (from vapors or mists) is possible. Inhalation of lead fumes can cause upper respiratory tract and lung irritation.</p>						
2.6	<p>Chronic Health Effects: EYES: Possible corneal scarring. SKIN: No chronic health effects are reported by the manufacturer. INGESTION: No chronic health effects are reported by the manufacturer INHALATION: Respiratory dermatitis, chronic bronchitis, tooth enamel erosion, and possible damage to the reproductive system, nervous system, kidneys, and liver.</p>						
2.7	<p>Target Organs: Eyes, skin, kidneys, liver, and respiratory system.</p>						

NA = Not Available; ND = Not Determined; NE = Not Established; NF = Not Found; C = Ceiling Limit; See Section 16 for Additional Definitions of Terms Used NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

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3. COMPOSITION & INGREDIENTS


CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)								
					ACGIH		NOHSC			OSHA			OTHER
					ppm		ppm			ppm			
TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH						
SULFURIC ACID	7664-93-9	WS5600000	231-639-5	30-61	(1)	NA	(1)	(3)	NF	(1)	NA	NA	

4. FIRST AID MEASURES

4.1	<p>First Aid:</p> <p>EYES: Flush eyes thoroughly with copious amounts of water for at least 20 minutes, holding eyelids open to ensure complete flushing. Seek immediate medical attention.</p> <p>SKIN: Remove contaminated clothing and flush affected areas with water. Seek prompt medical attention. Launder clothing before reuse.</p> <p>INGESTION: Do not induce vomiting. Call a physician or poison control center for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.</p> <p>INHALATION: Remove victim to fresh air at once. If breathing is difficult, provide supplemental oxygen. If breathing has stopped, provide artificial respiration. Seek immediate medical attention. Provide supportive treatment, keeping victim warm and quiet.</p>										
4.2	<p>Medical Conditions Aggravated by Exposure:</p> <p>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.</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: blue; color: white;">HEALTH</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="background-color: red; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: yellow;">REACTIVITY</td> <td style="text-align: center;">2</td> </tr> <tr> <td>PROTECTIVE EQUIPMENT</td> <td style="text-align: center;">B</td> </tr> <tr> <td>EYES</td> <td>SKIN</td> </tr> </table>	HEALTH	3	FLAMMABILITY	0	REACTIVITY	2	PROTECTIVE EQUIPMENT	B	EYES	SKIN
HEALTH	3										
FLAMMABILITY	0										
REACTIVITY	2										
PROTECTIVE EQUIPMENT	B										
EYES	SKIN										

5. FIREFIGHTING MEASURES

5.1	Flashpoint & Method: NA
5.2	Autoignition Temperature: NA
5.3	Flammability Limits: HYDROGEN GAS Lower Explosive Limit (LEL): 4.0 Upper Explosive Limit (UEL): 74.0
5.4	Fire & Explosion Hazards: Danger! Explosion hazard! Hydrogen gas will be present in battery. Water applied to electrolyte will release heat and cause spatter.
5.5	Extinguishing Methods: Carbon Dioxide, foam, dry chemical, water, water fog.
5.6	<p>Firefighting Procedures: Keep containers cool until well after the fire is out. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters should wear full-face, self-contained breathing apparatus (MSHA/NIOSH approved or the equivalent) and impervious clothing.</p> <p>HAZCHEM CODE: 2R</p>



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6. ACCIDENTAL RELEASE MEASURES

6.1	Spills: Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize the spill with soda ash, sodium bicarbonate, lime, etc. If used, cautiously dilute with water. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer.
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: POISON – CAUSES SEVERE BURNS. DANGER – CONTAINS SULFURIC ACID
7.2	Storage & Handling: Handle cautiously; avoid contact with skin and eyes. Storage and handling areas should be equipped with proper containment to capture and neutralize spills.
7.3	Special Precautions: Storage and use areas should be equipped with eyewash stations and safety showers.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid resistant. In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.
8.2	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.
8.3	Eye Protection: Safety glasses with side shields should be used with this product. If splashing is anticipated, splash goggles and a faceshield are recommended.
8.4	Hand Protection: Where contact is likely, impervious gloves are recommended. Do not wear rings, watches, or jewelry that could entrap the material against the skin.
8.5	Body Protection: Acid resistant apron. Under severe exposure or emergency conditions, wear acid resistant clothing and boots.

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	1.220 – 1.500
9.2	Boiling Point:	112 °C (235 °F)
9.3	Melting Point:	NA
9.4	Evaporation Rate:	< 1.0
9.5	Vapor Pressure:	13
9.6	Molecular Weight:	NA
9.7	Appearance & Color:	Electrolyte is a clear liquid.
9.8	Odor Threshold:	Sharp, penetrating, pungent odor.
9.9	Solubility:	100 %
9.10	pH	NA
9.11	Viscosity:	NA
9.12	Other Information:	NA

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10. STABILITY & REACTIVITY

10.1	Stability: Stable.
10.2	Hazardous Decomposition Products: Sulfur trioxide, carbon monoxide, sulfuric acid fumes, and sulfur dioxide.
10.3	Hazardous Polymerization: Will not occur.
10.4	Conditions to Avoid: Contact with organic materials, combustibles, strong reducing agents, metals, strong oxidizers, water.
10.5	Incompatible Substances: Contact with metals may produce toxic sulfur dioxide fumes and/or hydrogen gas.

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: No general or specific toxicity data has been reported by the manufacturer, except for that information presented in Section 2. However, good personal hygiene practices, such as washing any skin contact areas and removing contaminated clothing, are recommended.	
11.2	Acute Toxicity: See section 2.5	
11.3	Chronic Toxicity: See section 2.6	
11.4	Suspected Carcinogen: YES. Strong inorganic acid mist containing sulfuric acid is classified as a Group 1 Human Carcinogen by the IARC. However, this classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions in a battery. This mist can only be produced by misuse, such as overcharging. Lead and arsenic are classified as Group 2B carcinogens by the IARC.	
11.5	Reproductive Toxicity:	
	Mutagenicity:	This product is not expected to cause mutagenic effects in humans.
	Embryotoxicity:	This product is not expected to cause embryotoxic effects in humans.
	Teratogenicity:	This product is not expected to cause teratogenic effects in humans.
	Reproductive Toxicity:	This product is not expected to cause reproductive harm in humans.
11.6	Irritancy of Product: NA	
11.7	Biological Exposure Indices: NA	
11.8	Physician Recommendations: Treat symptomatically.	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: The manufacturer has not reported any detailed studies on the environmental fate of the material. However, prudent practice would dictate the material not be allowed to enter the environment.
12.2	Effects on Plants & Animals: The manufacturer has not reported any animal or plant effects
12.3	Effects on Aquatic Life: The manufacturer has not reported any aquatic life effects.


13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: Place neutralized acid in sealed containers and dispose of as hazardous waste, as applicable. Large water diluted spills after neutralization and testing should be managed in accordance with local, state and federal requirements. Consult state environmental agency and/or federal EPA.
13.2	Special Considerations: U.S. EPA Characteristic Waste (Corrosivity) - D002



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14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	
14.2	IATA (AIR): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	
14.3	IMDG (OCN): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	
14.4	TDGR (CAN): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	
14.5	ADR/RID (EU): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	
14.6	SCT (MEX): UN2794, ACUMULADORES ELECTRICOS DE ELECTROLITO LIQUIDO ACIDO, 8, III	
14.7	ADGR (AUS): UN2794, BATTERIES, WET, FILLED WITH ACID, 8, III	

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements: 313: Sulfuric Acid (500 lbs)	
15.2	SARA Threshold Planning Quantity: TPQ: Sulfuric Acid (1000 lbs)	
15.3	TSCA Inventory Status: The components of this product are listed on the TSCA inventory.	
15.4	CERCLA Reportable Quantity (RQ): Sulfuric Acid: 1000 lbs (454 kgs)	
15.5	Other Federal Requirements: 311/312: Sulfuric Acid (500 lbs)	
15.6	Other Canadian Regulations All chemical substances of this product are listed on the CEPA DSL/NDSL or are exempt from list requirements. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.	
15.7	State Regulatory Information: This product contains sulfuric acid, a substance known to the State of California to cause cancer (strong inorganic acids containing sulfuric acid – March 14, 2003).	
15.8	European Union 67/548/EEC and Australia NOHSC:2011 (2003) Requirements: The primary components of this product are listed in Annex I of EU Directive 67/548/EEC: Sulfuric Acid: C, T – Corrosive, Toxic. R: 35 - Causes severe burns. S: Keep locked up and out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. In case of accident or if you feel unwell, seek medical advice immediately. HAZCHEM CODE: 2R	

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16. OTHER INFORMATION

16.1 Other Information:

NA

16.2 Terms & Definitions:

Please see last page of this MSDS.

16.3 Disclaimer:

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Kawasaki's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

16.4 Prepared for:

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DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
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EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

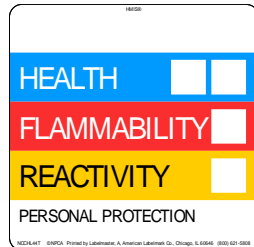
FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
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HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



PERSONAL PROTECTION RATINGS:

A		G	
B		H	
C		I	
D		J	
E		K	
F		X	Consult your supervisor or S.O.P. for special handling directions.

Note: the dotted circle indicates that this respiratory protective equipment is required for high concentrations or for large volume spills or releases of product.

OTHER STANDARD ABBREVIATIONS:

NA	Not Available
NR	No Results
NE	Not Established
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

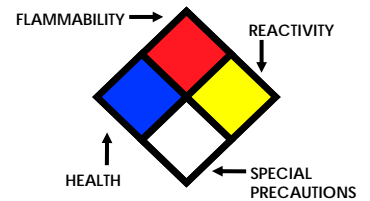
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
-W	Use No Water
OX	Oxidizer



TOXICOLOGICAL INFORMATION:

LD₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD₁₀	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD₁₀, LD₁₀, & LD₀₁ or TC, TC₀₁, LC₁₀, & LC₀₁	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{ow} or log K_{oc}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
NOHSC	Australia National Occupational Health & Safety Code
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)

EC INFORMATION:

C	E	F	N	O	T+	Xi	Xn
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful