MATERIAL SAFETY DATA SHEET
May be used to comply with OSHA’s Hazardous Communication Standard

IDENTITY (AS USED ON LABEL AND LIST)
SEALED, RECHARGEABLE, LEAD-ACID BATTERY


SECTION I
Manufacturer’s and/or Distributor’s Name
Vector Manufacturing, Ltd.

24 hour Emergency Telephone No. Domestic 1-800-255-3924 for International (call collect) 1-813-248-0585 ref DGA/M/001

4140 S.W. 28th Way
Telephone Number for Information
1-954-584-4446

Ft. Laud, FL 33312
Date Prepared: September 8, 1997
Date Amended: Jan. 10, 2005

SECTION II - Hazardous Ingredients/Identity Information

Hazardous Components | CAS #  | % | TLV (ACGIH) | PEL (OSHA) |
-----------------------|--------|---|------------|------------|
*LEAD                  | 7439-92-1 | 43-70 | 0.15 MG/M3 | 50 UG/M3   |
*LEAD OXIDE           | 1317-36-8 | 20-25 | 0.15 MG/M3 | 50 UG/M3   |
*LEAD SULFATE         | 7446-14-2 | N/D  | 0.15 MG/M3 | 50 MU/M3   |
*SULFURIC ACID        | 7664-93-9 | 20-44 | 1 MG/M3** | 1 MG/M3**  |

Hazardous Codes Health: 3 – CORROSIVE Fire: 0 – NON-FLAMMABLE Reactivity: 1 Slightly Reactive

** STEL (ACGIH: 3 MG/M3) STEL (OSHA): N/A
N/D = NOT DETERMINED N/A = NOT APPLICABLE
* THESE CHEMICALS ARE SUBJECT TO SECTION 313 TITLE iii SARA REPORTING REQUIREMENTS. THE DATA PRESENTED REFER PRIMARILY TO THE IMMEDIATE HAZARD ASSOCIATED WITH THIS PRODUCT.

SECTION III – Physical Properties

Appearance/odor Acid electrolyte is clear with a strong acid odor

Specific Gravity: >1.1 Vapor Density (Air=1): 3.4

Boiling point: >219 Degrees F Melting Point: N/A

Vapor Pressure: <20 mm Hg at 77 Degrees F Solubility in Water: Soluble

Evaporation Rate (BU-AC=1): < 1 pH: <1

% Volatile by Volume: N/A % Volatile Organic Carbon: N/A

SECTION IV – Fire and Explosion Hazard Data

Flash Point: N/A Auto-ignition Temp: N/A

Flammable Limits: LEL: N/A% UEL: N/A%

Extinguishing Media: Carbon Dioxide, Dry Chemical, or Foam.

Special Fire Fighting Procedures: Fire Fighters should wear self-contained breathing apparatus and protective clothing to avoid corrosive and toxic mists, vapors and possibly lead fumes. Cool battery exterior with water to prevent rupture.

Unusual Fire and Explosion Hazards:
Sulfuric acid, especially when diluted with water, can react with metals to produce flammable Hydrogen gas.
**SECTION V – Reactivity Data**

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<tr>
<th>Stability: Stable</th>
<th>Conditions to Avoid: None</th>
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<tr>
<td>Hazardous Polymerization: Will not occur</td>
<td>Conditions to Avoid: None</td>
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**Incompatibility (Materials to Avoid):** Strong alkaline materials, materials that react with a strong oxidizer.

**Hazardous Decomposition Products:** Thermal decomposition will produce toxic sulfur oxides and lead fumes. Thermal decomposition of the battery casing material may produce nitrogen oxides and cyanides.

**SECTION VI – Health Hazard Data**

**Primary routes of Exposure:**
- Oral: 
- Skin: X
- Eye: X
- Inhalation: X

**Effects of Overexposure:**
The electrolyte is corrosive to skin, eyes, and Mucous membranes, repeated or prolonged inhalation of mists can cause inflammation of the upper respiratory tract and chronic bronchitis; pulmonary edema and death may occur from severe exposures.

Early symptoms of lead intoxication include a persistent metallic taste, anorexia, constipation, and severe abdominal pain. Continued exposure may result in muscle weakness and fatigue, nervous system damage, tremors, pallor of face, anemia and kidney damage.

Listed as a Carcinogen or potential Carcinogen By the following agencies.
- NTP: No
- LARC: Yes
- OSHA: No

**Toxicity Study Information (for Environment & Safety Professionals):** Only select registry of toxic effects of chemical substances (RTECS) data are presented here: Consult latest issue for more information.

**Lead –TCLO: 10 UG/M3, human, inhalation: TDLO: 450 MG/KG human, oral, reported to cause chromosomal aberrations in humans and animal cells. Causes reproductive and developmental effects in experimental animals.**

**According to the International Agency for Research on Cancer (IARC) Monograph Supplement (1987), there is inadequate evidence for carcinogens of lead in humans. Lead and inorganic lead compounds are classified as group 2B carcinogens by IARC. OSHA regulated (29CFR 1910.1025).**

**Lead Sulfate: LDLO: 2 G/KG, dog, oral: LDLO: 30 G/KG, guinea pig, oral, positive in sister chromatic exchange assays in humans and animal cells. The lead and lead sulfate contained in this product pose a minimal hazard because they are enclosed. A lead hazard may result during recycling or if battery is discarded improperly.**

**SECTION VII – First Aid Procedures**

**Eye:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and seek medical attention immediately.

**Skin:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes and seek medical attention immediately. Wash clothing before reuse.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen & seek medical attention.

**Ingestion:** If swallowed, do not induce vomiting, give a glass of water and seek medical attention.

**SECTION VIII – SPECIAL PROTECTION INFORMATION**

**Ventilation:** General ventilation should be adequate under normal conditions of use.

**Respiratory Protection:** Respirators are not required under normal conditions of use, use NIOSH approved respirator for acid mist if PEL or TLV is exceeded when handling electrolyte.

**Protective Gloves:** Protective gloves are required when handling batteries or adding electrolyte. Neoprene, rubber, or polyethylene type suggested.
### SECTION VIII – SPECIAL PROTECTION INFORMATION continued

- **Eye Protection:** Chemical splash goggles or full face shield is required when handling batteries or adding electrolyte.

- **Other Clothing and/or Protection:** Rubber boots and rubber apron in accordance with potential for electrolyte exposure, long legged and long-sleeved clothing.

### SECTION IX – ENVIRONMENTAL INFORMATION

- **Steps to be taken in case Material is Released or Spilled:** Cover spill with clay absorbent. Neutralize with sodium bicarbonate (baking soda). Alternatively sand, ashes or gravel can be used to cover spill and soda, ash or lime can be used to neutralize.

- **Waste Disposal Method:** Batteries and electrolyte must be disposed of in accordance with RCRA Regulations. Recycling lead contained in this product is suggested. Dispose of in accordance with local, State and Federal rules and regulations.

- **TSCA Status:** All components appear on TSCA chemical substance inventory.

### SECTION X – SHIPPING INFORMATION

- **Shipping Information:** Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE, UN 2800, CLASS 8, PG III
  If battery is an integrated part of equipment: Proper shipping name: BATTERY-POWERED EQUIPMENT, UN 3171, CLASS 9

- **Disclaimer:** It is the responsibility of the person as described in DOT 49 CFR to ensure that all applicable regulations are met domestic and international.
RECHARGEABLE BATTERY RECYCLE NOTICE

Some states and cities have enacted laws related to the proper disposal of Rechargeable batteries. In an effort to reduce the amount of rechargeable batteries being disposed of as solid waste we are required to notify you of recycling opportunities where there is no cost to you.

The Rechargeable Battery Recycling Corporation (RBRC) is an organization funded by rechargeable battery manufacturers whose mission is to implement programs to collect rechargeable batteries for recycling. For more information on how to recycle your rechargeable batteries, at no cost to you, please visit the web site listed below.

This Rechargeable Battery law does not apply to household alkaline batteries, watch or hearing aid button batteries or automobile batteries.

www.call2recycle.org