SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Industrial/commercial lead acid battery
ODOUR: Odourless
ODOUR THRESHOLD: NOT APPLICABLE
PHYSICAL STATE: sulfuric acid: Liquid; Lead: solid
pH: <1
BOILING POINT: 113-116°C (sulfuric acid) 1070°C (Lead)
MELTING POINT: Liquid (sulfuric acid) 327°C (Lead)
FREEZING POINT: NOT APPLICABLE
VAPOUR PRESSURE: 10 mmHg
VAPOUR DENSITY (AIR = 1): > 1
SPECIFIC GRAVITY (H_2O = 1): 1.230–1.350 (sulfuric acid) 11.34 (Lead)
EVAPORATION RATE (n-BuAc=1): < 1
SOLUBILITY IN WATER: 100% (sulfuric acid)
FLASH POINT: Below room temperature (as hydrogen gas)
AUTO-IGNITION TEMPERATURE: NOT APPLICABLE
LOWER EXPLOSIVE LIMIT (LEL): 4% (as hydrogen gas)
UPPER EXPLOSIVE LIMIT (UEL): 74% (as hydrogen gas)
PARTITION COEFFICIENT: NOT APPLICABLE
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 BYPRODUCTS: Thermal decomposition will produce sulphur dioxide, sulphur 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: LD50, Rat: 2140 mg/kg
LC50, Guinea pig: 510 mg/m³
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 abnormal conduction velocities in persons 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 19 th 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.
• The international agency for research on cancer (IARC) has classified “strong inorganic acid mist containing Sulfuric acid” as a category carcinogen, a substance that is carcinogenous to humans. This classification does 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.

SECTION 12: ECOLOGICAL INFORMATION

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

BIOACCUMULATIVE 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.

SECTION 12: ECOLOGICAL INFORMATION continued

AQUATIC TOXICITY (Test Results & Comments):
Sulfuric acid: 24-hour LC50, fresh water fish *(Brachydanio rerio)*: 82 mg/l
96-hour LOEC, fresh water fish *(Cyprinus carpio)*: 22 mg/l
Lead (metal): No data available

Additional Information
- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): Not Applicable

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of as hazardous waste. If battery is leaking, place battery in a heavy-duty plastic bag. Wear acid resistant boots, faceshield, acid resistant apron, and acid resistant gloves.

Sulfuric acid: Not Applicable
Dispose off as a hazardous waste. If uncertain, call the Enirgi Power Storage representative.

DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.
Batteries: Send to lead recycle station or contact Enirgi Power Storage representative.

RCRA HAZARD CLASS: D001 and D008

SECTION 14: TRANSPORT INFORMATION

Name: Battery, Wet, Non-Spillable, Electric Storage
UN Number : 2800
Dangerous Goods Class : 8
Packing Group : III
Hazchem Code : 2X

Transport : The Australian Dangerous Goods Code Special Provision SP238 and Special Provision A67 of the International Air Transport Association (IATA) Dangerous Goods Regulations, allows Enirgi Power Storage to transport certain non-spillable batteries as non-dangerous goods by road, rail and air. They are exempt provided they are properly packed for transport and the terminals are protected from short circuit. Contact Enirgi Power Storage for more information.

SECTION 15: REGULATORY INFORMATION

Poison Schedule Number : S6 under "Standard for Uniform Scheduling of Drugs and Poison"

SECTION 16: OTHER INFORMATION

PREPARATION INFORMATION: Prepared by Technical Officer, Enirgi Power Storage April 2011.

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