

SECTION 1A: PRODUCT IDENTIFICATION

PRODUCT NAME: Valve Regulated Lead Acid Battery

OTHER NAMES: BAE PVV Range

PRODUCT TYPE: Battery, Wet, Non-Spillable, Electric Storage

| | | | |
|--------------------------------|-------------------------|-------------------------------|---------------|
| UN NUMBER : | UN2800 | CAS NUMBER : | See Section 3 |
| HAZCHEM Code : | 2X | POISONS SCHEDULE No. : | 6 |
| DANGEROUS GOODS CLASS : | Class 8 | PACKAGING GROUP : | III |
| PRODUCT USE : | C100 Solar Applications | | |

SECTION 1B: PRODUCT SUPPLIER DETAIL

SUPPLIER : C&A A&A A&A L&A A&A Ad&L A&A A&A ATA Ad

A.B.N. : 91 002 915 326

ADDRESS : Street : O . " .
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TELEPHONE: 1300 783 879

EMERGENCY TELEPHONE NUMBER: 1300 783 879

CHEMTREC PHONE: +703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

ACUTE TOXICITY: Sulfuric acid may cause severe skin irritation, burns, and damage to cornea and possible blindness and upper respiratory irritation. Lead compounds may cause abdominal pain, nausea, headaches, vomiting, diarrhoea, severe cramping and difficulty in sleeping.

SWALLOWED: Sulfuric acid may cause severe irritation of mouth, throat, oesophagus and stomach. Lead compounds may cause abdominal pain, nausea, vomiting, diarrhoea and severe cramping. Acute ingestion should be treated by a medical practitioner.

EYES : Sulfuric acid may cause severe irritation, burns, cornea damage and possible blindness. If electrolyte contacts eyes, immediately wash with large amounts of water and continue flushing for 15 mins. Acute ingestion should be treated by a medical practitioner.

SECTION 2: HAZARDS IDENTIFICATION continued

SKIN: Sulfuric acid may cause severe irritation, burns and ulceration. Lead compounds are not absorbed through the skin.

INHALED : Sulfuric acid vapours or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs.

CHRONIC TOXICITY : Sulfuric acid may lead to scarring of cornea, inflammation of the nose, throat and bronchial tubes and possible erosion of tooth enamel. Lead compounds may cause anaemia, damage to kidneys and nervous system. May cause reproductive changes in both males and females.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Components Specific Chemical Identity (Common Name (s)) | Average % |
|---|-----------|
| Lead, CAS #7439921 | 64 |
| Sulfuric Acid, CAS #7664939 | 26 |

SECTION 4: FIRST AID MEASURES

EYES: **Sulfuric acid** - Flush eyes with large amounts of cool water for at least 15 minutes. Seek immediate medical attention.
Lead Compounds – Flush eyes with large amounts of cool water for at least 15 minutes. Seek immediate medical attention.

SKIN: 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: **Sulfuric acid** - If swallowed, give large amounts of water or milk, then consult a medical practitioner . Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.
Lead Compounds – Seek immediate medical attention.

INHALATION: **Sulfuric acid** - If breathing difficulties develop, remove person to fresh air. Seek medical practitioner if symptoms persist.
Lead Compounds – Remove from exposure; gargle, wash nose and eyes and seek medical attention.

SECTION 5: FIRE-FIGHTING MEASURES

FLASH POINT: NOT APPLICABLE

FLAMMABLE LIMITS: 4% (Hydrogen Gas)

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

SPECIAL FIREFIGHTING PROCEDURES & PROTECTIVE EQUIPMENT: Use appropriate media for surrounding fire. Do not use carbon dioxide directly on cells. Avoid breathing vapours. 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 PRECAUTIONS: 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 or federal regulations.

Treat as HAZARDOUS WASTE

Additional Information : Lead acid batteries and their plastic cases are recyclable. Contact your Enirgi Power Storage representative for recycling information.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING AND STORAGE:

- Do not place anything on the battery tops.
- Do not cover batteries with aluminium coated sarking.
- 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

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 6).

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: Chemically impervious apron and face shield recommended when adding water or electrolyte to batteries.

Wash Hands after handling.

EXPOSURE GUIDELINES & LIMITS:

Lead, inorganic (as Pb) 0.05 mg/m³

Sulfuric acid 1.00 mg/m³

Antimony 0.50 mg/m³

Arsenic 0.05 mg/m³

Refer to Safe Work Australia <http://hsis.ascc.gov.au/SearchES.aspx>

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 (H₂O = 1):** 1.270–1.330 (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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