

1. COMPANY DETAILS

Product Name:	VALVE REGULATED LEAD ACID (VRLA) BATTERY
Other Name:	Battery, Wet, Non-Spillable, Electric Storage
Manufacturers Product Code:	Battery, Industrial
Use:	Industrial Standby Power and Motive Power
Address:	49-65 Cobalt Street, Carole Park, Queensland, 4300 Australia
Telephone Number	(07) 3361 6361
Emergency Telephone Number:	000 (For Emergency Services in Australia)
Emergency Information	(07) 3361 6361 (Monday – Friday 9:00 am to 5:00pm)

2. HAZARDS IDENTIFICATION

HAZARD CLASSIFICATION: HAZARDOUS SUBSTANCE. DANGEROUS GOODS

Risk Phrases

Sulphuric Acid	R35 – Causes severe burns
	R61 – May cause harm to the unborn child
Lead components	R62 – Possible risk of impaired fertility
	R20/22 – harmful by inhalation and if swallowed
	R33 – Danger of cumulative effects

Safety Phrases

Sulphuric Acid	S1/2 – Keep locked up and out of reach of children
	S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S30 – Never add water to this product
	S45 – In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible)
Lead components	S53 – Avoid exposure – obtain special instructions before use
	S45 – In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible)

3. INGREDIENTS

Chemical Name	CAS Number	Proportion by Weight
Lead	7439-92-1	30 – 60%
Sulphuric Acid	7664-93-9	20 – 40%
Lead Dioxide	1309-60-0	10 – 30%

4. FIRST AID MEASURES

Swallowed:	Sulphuric acid – Do not induce vomiting. Give a glass of water. Seek immediate medical assistance.
Eye Contact:	Sulphuric acid – Irrigate with water for 15 minutes. Seek immediate medical assistance.
Skin Contact:	Remove contaminated clothing and wash skin thoroughly with water. Seek medical assistance if symptoms persist.
Inhaled:	
Sulphuric acid:	Apply artificial resuscitation and seek immediate medical assistance if not breathing.
Lead compounds:	Gargle, wash nose and lips, and seek immediate medical assistance.
First Aid Facilities:	Access to a sufficient supply of potable water may be necessary.
Advice to Doctor:	Treat symptomatically.

5. FIRE / EXPLOSION HAZARD

Fire Fighting Recommendations:

Use Carbon Dioxide or Dry Chemical extinguishers. Fire-fighters to wear acid-resistant full protective clothing, including rubber footwear and self-contained breathing apparatus. Water (fine spray or fog) should not be used unless from a safe distance due to vigorous and exothermic reaction which will result.

6. SPILLS

Under normal operating conditions there should not be any acid released from this product even if the external casing is damaged. In the event that liquid escapes from the cell from damage to the casing, the following spill response should be actioned. Wear personal safety equipment at all times as detailed in "Personal protection". Establish a hazard zone. Bund and neutralise liquid with Soda Ash or Sodium Bicarbonate. Slowly pour neutralising powder from the outside of the spill inwards. Continue until the entire spill is covered. Wait until the reaction is complete. Absorb excess liquid with dry earth, sand or a similar material.

7. STORAGE

This product contains a Scheduled Poison (S6) and must therefore be stored, maintained and used in accordance with the relevant State Poisons Act. At all times store away from explosives, "dangerous when wet" substances, foodstuffs, oxidisable materials, organic peroxides, radioactive substances, combustible materials and sources of ignition. Check regularly for spills and leaks. Store batteries

in cool, dry, well ventilated areas with adequate containment in the event of spills. The Australian Dangerous Goods Code defines battery transport requirements in Australia.

8. PRECAUTIONS FOR USE

Exposure Standard

Workplace Exposure Standard for Metallic Lead is 0.15 mg/m³ in air.
Workplace Exposure Standard for Sulphuric acid is 1 mg/m³ in air.

Engineering Controls

Use only in a well ventilated area.

Work Practices

Batteries are heavy, appropriate material handling equipment and techniques should be used. Handle batteries cautiously to avoid spills. Avoid contact with internal components. Wear protective clothing when handling batteries as detailed below in "Personal Protection". Always wash hands after handling batteries. Follow manufactures instructions for installation and service.

Personal Protection

Respirator Type: Not required under normal use.
Glove Type: Not required under normal use, however observe the following when handling Sulphuric acid, wear impervious PVC acid resistant gloves with elbow length gauntlet.
When handling lead, wear leather or similar type work gloves.
Eye Protection: Not required under normal use, however observe the following when handling Sulphuric acid, wear chemical goggles/face shield.
Clothing: When handling batteries, wear safety boots.

9. PHYSICAL DESCRIPTION / PROPERTIES

Appearance: The battery is a manufactured article. The sulphuric acid electrolyte is a clear, mobile liquid.
(Sulphuric Acid Electrolyte)
Boiling Point/Melting Point: (Sulphuric Acid Electrolyte) 95°C / -7 to -70°C
Vapour Pressure: (Sulphuric Acid Electrolyte) 13 to 22 mmHg @ 25°C
Specific Gravity: (Sulphuric Acid Electrolyte) 1.2 to 1.3 @ 25°C
Flashpoint: (Sulphuric Acid Electrolyte) Not Applicable
Flammability Limits: (Sulphuric Acid Electrolyte) Not Applicable
Solubility in Water: (Sulphuric Acid Electrolyte) 100%

Other Properties

Sulphuric Acid:

Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulphur trioxide gas, strong oxidisers and water. Contact with metals may produce toxic sulphur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds:

Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

10. FLAMMABILITY

Flammability:

Under some operating conditions or Sulphuric acid contact with most common metals, flammable hydrogen gas can be liberated, it is recommended that 2% hydrogen concentration is not exceeded. Do not use close to ignition sources. Use in a well ventilated area.

List of Dangerous Decomposition or Combustion Products:

Sulphuric acid may decompose to sulphur trioxide, carbon monoxide, sulphuric acid mist, sulphur dioxide and hydrogen. Exposure of lead compounds to high temperatures is likely to produce toxic metal fume, contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas. Exposure of plastic container and components to high temperatures may produce carbon dioxide, carbon monoxide, noxious aldehydes (eg. formaldehyde and acrolein), ketones, methane and ethane.

11. HEALTH HAZARD INFORMATION

Health Effects Acute:

Swallowed: **Sulphuric acid** Corrosive and causes severe burns. May cause severe irritation of mouth, throat, oesophagus and stomach.
Eye: **Lead compounds** Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhoea and severe cramping.
Sulphuric acid Severe irritation, burns, cornea damage, blindness.
Lead compounds May cause eye irritation.
Skin: **Sulphuric acid** Severe irritation, burns and ulceration
Lead compounds Not readily absorbed through the skin.
Inhaled: **Sulphuric acid** Breathing of vapours or mists may cause respiratory irritation.
Lead compounds Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs

Health Effects Chronic:

Sulphuric acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes. Evidence available indicates exposure to strong inorganic acid mists containing sulphuric acid is carcinogenic to humans. (World Health Organisation: IARC. Copy draft report "Acid Toxicology" File, Chem. Prods NW Registry.) This classification does not apply to sulphuric acid solutions or to electrolyte in batteries.

Lead compounds May cause constipation, weight loss, anaemia, fatigue, kidney damage, pain in joints, neuropathy (particularly of the motor nerves) and reproductive changes in male and female.

12. ECOLOGICAL INFORMATION

Environmental Risk Phrase: R58 – May cause long term adverse effects in the environment

13. DISPOSAL CONSIDERATIONS

Disposal: Refer to the local waste disposal authority for disposal of lead compounds, sulphuric acid and spent soda ash/sodium bicarbonate. Spent batteries should be sent to a secondary lead smelter for recycling.

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 Century Yuasa Batteries Pty Ltd. 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. Refer to Century Yuasa Batteries office for further information.

15. REGULATORY INFORMATION

Poisons Schedule Number: S6 under the 'Standard for Uniform Scheduling of Drugs and Poisons'

16. OTHER INFORMATION

Date of preparation: 17 October 2008

Date reviewed: 2 April 2012

Prepared according to the National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)], Review of Hazardous Substance Information Service (HSIS), <http://hsis.ascc.gov.au>.

Disclaimer

The information given is not necessarily exhaustive and further technical information may be obtained upon request from the Company's technical staff. All information given in this data sheet and by the Company's technical staff is compiled from the best information currently known to the Company's Senior Battery Scientist at today's date, but the Company accepts no responsibility whatsoever for its accuracy or for any results which can be obtained by customers or other persons. Any customer or other person who relies upon any advice or information given in this data sheet by the Company or by its technical staff does so entirely at its own risk and the Company will not be liable for any loss or damage thereby suffered notwithstanding any want of care on the part of the Company or its staff in compiling or giving the advice or information. In the result, our Senior Battery Scientist is trying to help you by giving you some information which you can take into account but you ought to seek the advice of medical experts in any practical situation and we strongly recommend that you ring the Poisons Information Centre in your State immediately. Any technical information in the absence of professional advice can prove dangerous.