

#### PRODUCT INFORMATION

**Product Name:** Sealed Lead-Acid Battery

**Trade Name:** AUS CELL No. 1

**Products Ranges:** HR Range / HC Range / Standard Range / BTS Range / UXL Range / UPS Range (High Rate) / FT Range / BTS-JS Range / Gel Range / EV Range / Solar Range / OPxV Range / OPzS Range

**Name of Company:**

Olympic Batteries Pty Ltd

Cnr of Grand Junction and South Roads, Wingfield, SA, 5013, Australia

**Telephone:** (08) 8262 4188 **Fax Number:** (08) 8262 7477

**Emergency Phone:** 61 434 143 594

**Date Issued:** January 1st, 2017



#### COMPOSITION

Chemical Name	CAS No.	Percentage by Wt.
Lead	7439-92-1	60-68
Tin	7440-31-5	0.28
Calcium	7440-70-2	0.03
Electrolyte: Sulfuric acid (diluted sulfuric acid in solid state, percentage acid: 38.5%)	7664-93-9	17-24
Case Material: Acrylonitrile Butadiene Styrene or Polypropylene	9003-56-9 9003-07-0	4-12

**Note:** Inorganic lead and electrolyte (water and sulfuric acid solution).

#### HAZARD IDENTIFICATION

Classified as hazardous according to Australian WHS regulations.

**GSH Classification(s)**      Specific target organ systemic toxicity (repeated exposure): Category 2  
 Acute toxicity: Oral: Category 4  
 Acute toxicity: Inhalation: Category 4  
 Aquatic toxicity (chronic): Category 1  
 Toxic to reproduction: Category 1A  
 Skin corrosion/irritation: Category 1A

**Signal word**                      DANGER

**Pictogram(s)**



**Hazard Statement(s)**

H220	Extremely flammable gas (hydrogen)
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H332	Harmful if inhaled
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects

**Prevention Statement(s)**

P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well ventilated area
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection

**Response Statement(s)**

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P308+P313	If exposed or concerned, get medical advice/attention.
P310	Immediately call a poison centre or doctor/physician
P321	Specific treatment is advised - see first aid instructions
P363	Wash contaminated clothing before reuse
P391	Collect spillage

**Storage Statement(s)**

P403	Store in a well ventilated area
P405	Store locked up

**Disposal Statement(s)**

P501	Dispose of contents/container in accordance with relevant regulations
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**Other Hazards**

The hazards provided relate to the battery contents. However, as long as using in a range of conditions specified in the manufacturer's specifications, Valve Regulated lead acid batteries are articles that do not change their shape and nature from the beginning to the end. This identification is described assuming that when handling these products, the contents are spilled out by dropping damage etc. from them, if the used batteries are recycled and if the general user touches the lead terminals.

## FIRST AID MEASURES

**Emergency and First Aid Procedures:** Contact with internal components if battery is opened/broken.

Inhalation	Electrolyte: Remove to fresh air immediately. Give oxygen or artificial respiration if needed. Get immediate medical attention. Lead compounds: Remove from exposure, gargle, wash nose & lips. Consult physician.
Skin Contact	Electrolyte: Remove contaminated clothing and flush affected areas with plenty of water for at least 15 minutes. Remove contaminated clothing completely, including shoes. Lead compounds: Wash immediately with soap and water.
Eye Contact	Electrolyte and Lead compounds: Flush with plenty of water for at least 15 minutes, hold eyelids open. Get immediate medical attention.
Ingestion	Electrolyte: Give large quantities of water, DO NOT induce vomiting; consult physician. Lead compounds: Consult physician immediately.

## FIRE FIGHTING MEASURES

**Flash Point:** Not Applicable

**Flammable Limits:** LEL = 4.1% (hydrogen gas in air); UEL = 74.2%

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

**Special Fire Fighting Procedures:** If batteries are on charge, turn off power to the charging equipment but note that string of series connected batteries may still pose risk of electric shock even when charging equipment is shut down. Use positive pressure, self-contained breathing apparatus in fighting fire. Water applied to electrolyte generates heat and causes it to splatter. Wear acid resistant clothing. Ventilate area well.

**Hazardous Combustion Products:** In operation, batteries generate and release flammable hydrogen gas. They must always be assumed to contain this gas which, if ignited, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

## ACCIDENTAL RELEASE MEASURES

Stop flow of material, contain/absorb small spills with dry sand, earth and vermiculite. Do not use combustible materials. If possible, carefully neutralise spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves and face shield. Do not allow discharge of un-neutralised acid to sewer. Neutralised acid must be managed in accordance with approved local, state and federal requirements.

## HANDLING AND STORAGE

**Handling:** Single batteries pose no risk of electric shock but there may be higher risk of electric shock from strings of connected batteries exceeding three 12 volt units. No hazards under normal usage as the sulfuric acid is immobilised in a gel structure.

**Storage:** Store in a cool, dry, well ventilated area and away from combustible materials, sources of ignition, excessive heat and direct sunlight. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short circuit.

**Charging:** There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut off power to chargers whenever not in use. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames. Wear face and eye protection when near batteries being charged.

### PHYSICAL & CHEMICAL PROPERTIES

Boiling Point @ 760mm Hg	108 to 114°C
Point of Solidification	-69°C
% Solubility in Water	100
Evaporation Rate (Butyl acetate = 1)	Less than 1
Appearance and Odour Threshold	Electrolyte is a white translucent gel; no apparent odour. A battery is a manufactured article.
Octanol Water Partition Coefficient ( $K_{ow}$ )	Not applicable
Specific Gravity @ 25°C ( $H_2O = 1$ )	1.2185 to 1.3028
Vapour Pressure (mm Hg)	13.5 to 17.8
pH	Less than 1
Vapour Density (AIR = 1)	Greater than 1
Viscosity	Not applicable
% Volatiles by Volume @ 21°C	Not applicable

Note: The properties above reflect 30-40% sulfuric acid.

### STABILITY & REACTIVITY

**Stability:** Stable

**Conditions to avoid:** Prolonged overcharge at high current; sources of ignition.

**Incompatibilities (materials to avoid):** *Electrolyte (Water and Sulfuric acid solution):* Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidisers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. No further concern for mechanical impact.

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

**Hazardous Decomposition Products:** *Electrolyte:* Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide.

**Lead Compounds:** Temperatures above the melting point are likely to produce toxic metal fume, vapour or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

**Hazardous Polymerization:** Will not occur.

### EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient	Occupational Exposure Limits (mg/m <sup>3</sup> )					
	US - OSHA	US - ACGIH	US - NIOSH	Quebec - PEV	Ontario - OEL	EU - OEL
Inorganic forms of:						
Lead	0.05	0.05	0.05	0.05	0.05	0.15(a)
Tin	2	2	2	2	2	2(b)
Calcium	N/A	N/A	N/A	N/A	N/A	N/A
Electrolyte (hydrogel: Sulfuric acid - diluted sulfuric acid in solid state percentage acid: 38.5%)	1	0.2	1	1	0.2	0.05(c)

Ingredient	US - OSHA	US - ACGIH	US - NIOSH	Quebec - PEV	Ontario - OEL	EU - OEL
Silicon Dioxide	80 mg/m <sup>3</sup> /%-SiO <sub>2</sub> (d)	N/A	6	6(c)	10(c)	0.1(e)

**Notes:**

- (a) as inhalable aerosol based on OEL for Belgium (e) based on OEL for Belgium & Denmark  
 (b) Thoracic fraction N/A Not applicable  
 (c) as silica gel

<b>Respiratory Protection</b>	None required under normal conditions.
<b>Engineering Controls (Ventilation)</b>	Good ventilation should be used. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously. If battery case is damaged, avoid bodily contact with internal components.
<b>Hand protection</b>	Rubber or plastic acid-resistant gloves with elbow length gauntlet. If battery case is damaged, wear rubber gloves.
<b>Skin and body protection</b>	None required under normal conditions.
<b>Eye Protection</b>	If battery case damaged, chemical goggles or face shield.
<b>Other Protective Clothing or Equipment</b>	Protective clothing is required where repeated or prolonged skin contact may occur. In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.
<b>Work/Hygienic Practices</b>	Remove jewelry, rings, watches and any other metallic objects while working on batteries. All tools should be insulated to avoid the possibility of shorting connections. Do not lay tools on top of battery. Be sure to touch a grounded surface to prevent electricity from tools and individual persons affecting the batteries. Serious injury can result from improper lifting or installation. Do not lift, carry, install or remove by pulling the terminal posts for safety reasons and because terminal posts and post seals may be damaged. Keep a fire extinguisher and emergency communications the work area.

## TOXICOLOGICAL INFORMATION

### Routes of entry:

*Electrolyte:* Harmful by all routes of entry.

*Lead compounds:* Hazardous exposure can occur only when product is heated above the melting point, oxidised or otherwise processed or damaged to create dust, vapour or fume.

### Acute toxicity:

- Inhalation LD<sub>50</sub>:* *Electrolyte:* LC<sub>50</sub> rat: 375mg/m<sup>2</sup>; LC<sub>50</sub>: guinea pig: 510mg/m<sup>3</sup>  
*Lead compounds:* Acute toxicity point estimate = 4500 ppmV (based on lead bullion)
- Oral LD<sub>50</sub>:* *Electrolyte:* rat: 2140 mg/kg  
*Lead compounds:* Acute toxicity estimate (ATE) = 500mg/kg body weight (based on lead bullion)

### Inhalation:

*Electrolyte:* Breathing of sulfuric acid vapours or mists may cause severe respiratory irritation.

*Lead compounds:* Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

### Ingestion:

*Electrolyte:* May cause severe irritation of mouth, throat, esophagus and stomach.

*Lead compounds:* Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity.

### Skin contact:

*Electrolyte:* Severe irritation, burns and ulceration. Sulfuric acid is not readily absorbed through the skin and is not a dermal sensitiser.

*Lead compounds:* Not absorbed through the skin and not a dermal sensitiser.

**Eye contact:**

*Electrolyte:* Severe irritation, burns, cornea damage, blindness.

*Lead compounds:* May cause eye irritation.

**Synergistic products:**

*Electrolyte:* No known synergistic products.

*Lead compounds:* Synergistic effects have been noted with heavy metals (arsenic, cadmium, mercury), N-nitroso-N-(hydroxyethyl)ethylamine, N-(4-fluoro-4-biphenyl)acetamide, 2-(nitrosoethylamine)ethanol and benzo[a]pyrene.

*Tin:* Affects the metabolism of various essential minerals such as zinc, copper and iron.

**Additional Information:****Medical Conditions Generally Aggravated by Exposure:**

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of electrolyte (water and sulfuric acid solution) with skin may aggravate skin diseases such as eczema and contact dermatitis. Contact of electrolyte with eyes may damage cornea and/or cause blindness. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

**Additional Health Data:**

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas.

Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home nor laundered with personal non-contaminated clothing.

This product is intended for industrial use only and should be isolated from children and their environment.

**ECOLOGICAL INFORMATION**

**Environmental Fate:** Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

**Environmental Toxicity:** Aquatic toxicity:

*Sulfuric Acid:* 24 hr LC<sub>50</sub>, freshwater fish (*Brachydanio rerio*): 82mg/L

96 hr LOEC, freshwater fish (*Cyprinus carpio*): 22mg/L

*Lead:* 48 hr LC<sub>50</sub> (modeled for aquatic invertebrates): <1mg/L, based on lead bullion

**DISPOSAL CONSIDERATIONS**

**Spent batteries:** Send to secondary lead smelter for recycling.

**Electrolyte:** Place neutralised slurry into sealed, acid resistant containers and dispose of as hazardous waste, as applicable. Large water-diluted spills, after neutralisation and testing, should be managed in accordance with approved local, state and federal requirements.

## TRANSPORT INFORMATION

### Ground - US-DOT/CAN-TDG/EU-ADR/APEC-ADR:

Batteries, wet, non-spillable

UN 2800, 8, PG III

Label: "NON-SPILLABLE" or "NON-SPILLABLE BATTERY"

For US, refer to 49 CFR 173.159 for details.

### Aircraft - ICAO-IATA:

For air shipments, reference IATA Dangerous Goods Regulations Special Provision A67 and Packing Instruction 872.

### Vessel - IMO-IMDG:

For shipments by water, reference IMDG Special Provision 238 and Packing Instruction P003.

### Additional Information:

- Non-spillable battery complies with the provisions listed in 49 CFR 173.159. Does not require marking with an identification number or hazardous label and is not subject to hazardous shipping paper requirements.
- Each battery and the outer packaging must be plainly and durable marked "NON-SPILLABLE" or "NON-SPILLABLE BATTERY".
- Batteries must be kept upright at all times and packaged as required to prevent short circuits.
- Transport may require packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as shipped.

## REGULATORY INFORMATION

### US

#### Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 454kg. EPCRA Section 302 notification is required if 227kg or more of sulfuric acid is present at one site (40 CFR 370.10). An average commercial battery contains approximately 2.5kg of sulfuric acid.

#### Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 454kg. State and local reportable quantities for spilled sulfuric acid may vary.

#### Section 311/312 Hazard Categorisation:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 227kg or more and/or if lead is present in quantities of 4,540kg or more.

#### Section 313 EPCRA Toxic Substances:

Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorisation Act of 1986 and 40 CFR Part 372.

Chemical	CAS	Percent by Weight
Lead	7439-92-1	60-68
Sulfuric Acid/Water Solution	7664-93-9	17-22

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

**Note:** The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

**TSCA:** Each ingredient chemical listed in Section III of this SDS is also listed on the TSCA Registry.

**OSHA:** Considered hazardous under Hazard Communication Act (29CFR1910.1200)

**RCRA:** Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

**CAA:** Ritar Power supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalised on January 19, 1993, Ritar established a policy to eliminate the use of Class I ODC's.

**NFPA Hazard Rating for sulfuric acid:**

Flammability (red) = 0

Health (blue) = 3

Reactivity (yellow) = 2

## OTHER INFORMATION

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Vendee and third persons assume the risk of injury proximately caused by the material if reasonable safety procedures are not followed as provided for in the data sheet. Vendor shall not be liable for injury to vendee caused by abnormal use of the material even if reasonable practices are being followed.

Any person using this product, or in the same area, should be familiar with the contents of this data sheet and should be effectively communicated to employees.

Ritar Power makes no warranty with respect thereto and disclaims all liability. Recipients are advised to confirm in advance that the information is current and applicable.

**Disclaimer:** MSDS information is provided by the manufacturer