



by Schneider Electric

# MATERIAL SAFETY DATA SHEET

## BATTERY PACK CONTAINING LEAD ACID BATTERY

Issue Date April 2010

Classified as hazardous according to criteria of Worksafe Australia

### SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name: APC Australia Pty Limited ABN 70 088 913 866  
MGE UPS Systems Australia Pty Limited ABN 63 076 881 215

Address: Level 13, 65 Berry Street,  
North Sydney, NSW 2060  
Australia

Tel: 1 800 652 725

Contact: [http://jpaa-en.apc.com/cgi-bin/jpaa\\_en.cfg/php/enduser/ask.php?ISOCountryCode=au](http://jpaa-en.apc.com/cgi-bin/jpaa_en.cfg/php/enduser/ask.php?ISOCountryCode=au)  
Web: [www.apc.com/au](http://www.apc.com/au)

### SECTION 2: HAZARDS IDENTIFICATION

**Product Name:** Battery pack containing Lead Acid Battery

**Other Names:** Lead Acid Battery Wet, non-spillable  
Replacement Battery Cartridge (RBC)

**Manufacturer's Product Code:** (APC)RBCXXX(X) or SYBTXXX where XXX can be a digit or number

**Chemical Family:** Liquid content - sulfuric acid

**VOL/WGT:** Varies with model

**UN Number:** 2800

**Dangerous Goods Class:** 8

**Packaging Group:** III

**Hazchem Code:** 4Y (black on white) E

**Poisons Schedule No.:** S6

**Use:** Electric Storage Battery

Hazardous according to the criteria of the National Health & Safety Commission (NOHSC)

**Safety Phrases:** S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S45: In case of accident or if you feel unwell, seek medical advice immediately.  
S53: Avoid exposure.—obtain special instructions before use.

**Risk Phases:** R20/22: Harmful by inhalation and if swallowed.  
R33: Danger of cumulative effects.  
R35: Causes burns.  
R58: May cause long term adverse effects in the environment.  
R61: May cause harm to the unborn child.  
R62: Possible risk of impaired fertility.

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**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

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

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**SECTION 4: FIRST AID MEASURES**

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<b>Advice</b>	For advice, contact a Poisons Information Centre (Phone Australia 13 11 26; or a doctor at once). Treat symptomatically.
<b>Skin</b>	Flush the exposed skin with large amounts of water for 15 minutes. Remove contaminated clothing. Seek medical attention.
<b>Eyes</b>	Force eyes open and rinse with clean, cool, running water for 15 minutes. Do not use eye drops or other medication unless advised to do so by a doctor. Seek medical attention immediately after rinsing.
<b>Inhalation</b>	Remove from exposure. Seek medical attention.
<b>Ingestion</b>	Do not induce vomiting. If conscious, drink large quantities of milk or water. Follow with milk of magnesia, beaten egg, egg whites or vegetable oil. Seek medical attention immediately.
<b>Workplace Facilities:</b>	Provide emergency Showers and eyewash facilities.

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**SECTION 5: FIRE FIGHTING MEASURES**

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<b>Fire:</b>	Not Applicable
<b>Auto ignition temperature:</b>	Not Applicable
<b>Flammable Limits:</b>	(Hydrogen Gas) 4.1% LEL, 74.2% UEL
<b>Fire Point:</b>	Not Applicable
<b>Fire Fighting:</b>	Use Carbon Dioxide or Dry Chemical extinguishers. Fire fighter to wear acid-resistant full protective clothing, including rubber footwear and self-contained breathing apparatus. Water should not be used unless from a safe distance due to vigorous and exothermic reaction which will result.
<b>Explosion:</b>	Hydrogen and oxygen gases are produced during normal battery operation and charging. These gases escape through the battery vents and may form an explosive atmosphere around the battery if ventilation is poor. Avoid open flame, sparks and other ignition sources in areas where batteries are used or stored.
<b>Special Information:</b>	Sulfuric acid is an oxidizer and can ignite combustibles upon contact.
<b>Hazardous Combustion:</b>	Acid mists and vapors, toxic fumes from burning plastic

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## SECTION 6: ACCIDENTAL RELEASE OF MATERIAL

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- Small spill:** Neutralize the spill with baking soda, household ammonia and/or water. Rinse clean.
- Large spill:** Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or quicklime (calcium oxide). Cover spill with neutralizing agent such as soda ash or quicklime. Mix well. When mixture is neutral collect the residue in a suitable container and dispose of per local, state and federal waste regulations. Wear acid resistant boots, face shield, chemical splash goggles, and acid resistant gloves. Do not release unneutralized acid.

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## SECTION 7: HANDLING AND STORAGE

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- Storage Temperature:** Min: -20°F (-28°C) for fully charged batteries. 20°F (-6°C) for completely discharged batteries.  
Max: 80°F (26°C) for low shelf discharge but up to 100°F (38°C) is safe.
- Shelf Life:** Not determined.
- Special Sensitivity:** Avoid direct conductive connection across positive and negative terminals to prevent short circuit.
- Storage Precautions:** Batteries must be kept in an upright position away from ignition sources. Stack batteries so as to prevent accidental contact between terminal and/or other damage to terminals or containers. Whenever feasible, store on shipping pallet or rack. Do not stack loaded pallets or racks on top of other batteries. Store batteries in cool, well-ventilated location. Keep a supply of neutralizing agent in or near the storage area for emergency use. Avoid storage in areas exposed to heat or solar buildup. When batteries are completely discharged, the electrolyte will freeze when stored below 20°F. Fully charged batteries may be stored at temperatures as low as -20°F.
- Handling Precautions:** Use a battery carrier to lift battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of batteries. Do not tilt batteries to an angle greater than 45 degrees. Do not smoke when working near a battery.

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## SECTION 8: EXPOSURE CONTROL/ PERSONAL PROTECTION

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- Exposure standard:** Workplace Exposure Standard for Metallic Lead is 0.15mg/m<sup>3</sup> in air.  
Workplace Exposure Standard for Sulphuric acid is 1 mg/m<sup>3</sup> in air.

### Health Effects:

- Emergency Overview:** Danger! Explosive gases. Poison causes severe burns.  
Wet Storage Battery is a manufactured article composed of lead and acid encased in polypropylene, sealed and vented with a flame arrestor to reduce flashback potential. The case color varies. These batteries contain dilute sulfuric acid, a corrosive substance, and may expel explosive gases.

Routes of Entry:      Skin: Yes      Eye: Yes      Inhalation: Yes      Ingestion: Yes:

## Acute

- Skin:** Sulfuric acid mists or liquid irritates the skin and may cause chemical burns. Severity depends on acid concentration and duration of contact.
- Eye:** Sulfuric acid mists or liquid irritates the eyes and may cause chemical burns. Severity depends on acid concentration and duration of contact. Scarring of the cornea is possible.
- Inhalation:** Sulfuric acid mists irritate the nose and throat and may cause respiratory difficulty.
- Injection:** Sulfuric acid mists or liquid irritates the mucous membrane and may cause chemical burns. Repeated prolonged exposure may damage tooth enamel.

## Chronic

- Sulphuric acid:** Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.
- Lead Compounds:** May cause constipation, weight loss, anemia, fatigue, kidney damage, pain in joints, neuropathy (particularly of the motor nerves) and reproductive changes in male and female.

## Engineering Controls and Personal Protective Equipment

- Eye Protection:** Chemical splash goggles or a full-face shield with safety glasses.
- Skin Protection:** Acid resistant clothing with rubber/neoprene boots for major spill clean-up.
- Protective Gloves:** Acid resistant gloves such as rubber, neoprene, vinyl coated, PVC.
- Respiratory Protection:** Use NIOSH approved respiratory protection when concentrations exceed exposure guidelines.
- Other Protective Equipment:** Lab apron, acid resistant steel-toed boots and protective clothing.
- Ventilation:** Must be provided when charging in an enclosed area.
- Engineering Controls:** Use only in well ventilated area.
- Workplace/Hygienic Practices:** Upon skin contact, wash thoroughly with soap and water. Keep work areas clean.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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- Appearance:** A Battery Pack is a manufactured article composed of lead acid batteries, wire harnesses, and metal and/or plastic housing parts.  
The battery is a manufactured article. The sulphuric acid electrolyte is a clear, mobile liquid (Sulphuric Acid Electrolyte).  
The battery is cased in plastic with a sealed case, terminals and flame arrestor vent caps. Case color varies. Product is essentially odorless.
- Boiling Point:** (Sulphuric Acid Electrolyte) 95C/ -7 to -70°C.
- Melting Point** >149 °C for case
- Vapor Pressure:** (Sulphuric Acid Electrolyte) 13 to 22 mmHg@ 25°C.

<b>Specific Gravity:</b>	(Sulphuric Acid Electrolyte) 1.2 to 1.3 @25°C.
<b>Flashpoint:</b>	(Sulphuric Acid Electrolyte) Not Applicable.
<b>Flammability Limits:</b>	(Sulphuric Acid Electrolyte) Not Applicable.
<b>Solubility in Water:</b>	(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 oxidizers 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. Ingredients:

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## SECTION 10: STABILITY AND REACTIVITY

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<b>Stable:</b>	Yes
<b>Conditions to Avoid:</b>	Use only approved charging methods. Avoid overcharging. Avoid short-circuiting. Avoid sparks and other ignition sources. Keep away from oxidizing and reducing materials. Do not open, break or melt the casing.
<b>Incompatible Materials:</b>	Heat, open flames, sparks, strong oxidizing or reducing agents.
<b>Hazardous Decomposition:</b>	Can emit highly toxic fumes when heated. Combustion can produce carbon dioxide and carbon monoxide. Will release an explosive hydrogen/oxygen gas mixture. Oxides of lead, lead and/or lead compounds may be released. Sulfuric acid may release sulfur dioxide and/or sulfur trioxide.
<b>Hazardous Polymerization:</b>	Will not occur

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## SECTION 11: TOXICOLOGICAL INFORMATION

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<b>Toxicology Data:</b>	Wet storage batteries are sealed articles. Exposure to lead, acid and lead contaminated acid is not anticipated during normal storage, handling and intended use or maintenance of the battery. Battery recycling personnel should carefully follow established employer protocols when processing batteries and battery components.
<b>Eye Effects:</b>	Sulfuric Acid - Severe eye irritant
<b>Skin Effects:</b>	Sulfuric Acid - Extremely irritating, corrosive, and toxic to tissue, resulting in rapid destruction of tissue, causing severe burns. If much skin is involved, exposure is accompanied by shock, collapse and symptoms similar to those seen in severe burns. Repeated contact with dilute solutions can cause dermatitis.
<b>Ingestion Effects:</b>	Lead - Poison by ingestion in large dosages and with prolonged exposure leading to the same effects as seen in exposure by inhalation. Adults absorb 5-15% of ingested lead and retain less than 5%. Children absorb about 50% and retain about 30%.  Sulfuric Acid - Moderately toxic by ingestion.



by Schneider Electric

Product: Battery Pack with Lead Acid Battery

**Inhalation Effects:**

Lead - For industry, inhalation is much more important than is ingestion. Systemic effects include loss of appetite, anemia, malaise, insomnia, headache, irritability, muscle and joint pains, tremors, flaccid paralysis without anesthesia, hallucinations and distorted perceptions, muscle weakness, gastritis and liver changes. Major organ systems affected are the nervous system, blood system and kidneys. Experimental evidence suggests that blood levels of lead below 10 µg/dL can lower the IQ scores of children. Low levels of lead impair neurotransmission and immune system function and may increase systolic blood pressure. Reversible kidney damage can occur from acute exposure. Chronic exposure can lead to irreversible vascular sclerosis, tubular cell atrophy, interstitial fibrosis, and glomerular sclerosis. Very heavy intoxication can sometimes be detected by formation of a dark line on the gum margins.

Sulfuric Acid - Experimental poison by inhalation. Repeated or prolonged inhalation of sulfuric acid mist can cause inflammation of the upper respiratory tract, leading to chronic bronchitis. Severe exposure may cause chemical pneumonitis. Erosion of tooth enamel due to strong acid fume exposure has been observed in industry. Workers exposed to low concentrations of the vapors gradually lose their sensitivity to its irritating action.

Occupational exposures to strong-acid mists containing sulfuric acid have been associated with several respiratory tract cancers. However, there is no animal data supporting the carcinogenicity of sulfuric acid. Sulfuric acid has been found to be non-mutagenic, and in two studies of workers employed in lead acid battery manufacture, no association between sulfuric acid mist exposure and respiratory tract cancers was observed.

**Mutagenicity:**

Lead - Human mutation data reported.

**Reproductive Effects:**

Lead - Severe toxicity can cause sterility, abortion, and neonatal mortality and morbidity. Experimental teratogen. Experimental reproductive effects. Pathological lesions have been found on male gonads.

Sulfuric Acid - Experimental teratogen.

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## SECTION 12: ECOLOGICAL INFORMATION

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**Ecotoxicological Information:** Not applicable.

**Distribution:** Not determined.

**Chemical Fate Information:** Not determined.

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## SECTION 13: DISPOSAL CONSIDERATIONS

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Refer to the local waste disposal authority for disposal of lead compounds, sulphuric acid and spend soda ash/sodium bicarbonate. Lead-acid batteries are completely recyclable. For information on returning batteries to APC for recycling, contact your APC representative or obtain recycling information on the website ([www.apc.com/recycle/](http://www.apc.com/recycle/)).

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## SECTION 14: TRANSPORT INFORMATION

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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



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**Product: Battery Pack with Lead Acid Battery**

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 Australia Dangerous Goods Code defines battery transport requirements in Australia.

Sealed Lead Acid Batteries are classified in Australia as non-dangerous goods for road transport. For Air Transport, they are classified as suitable under IATA Dangerous Goods regulation Special Provision clause A67.

During Transport, the batteries should be kept in wooden or cardboard/polystyrene packaging. Considerable care should be exercised when handling the batteries due to their weight and the relative fragility of the case. When lifting individual cells the terminals must NOT be used.

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## SECTION 15 CONTACT INFORMATION

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<b>ORGANISATION</b>	<b>TELEPHONE</b>	<b>ASK FOR</b>
Poisons Information Centre – Australia Wide	131126	
APC Australia Pty Ltd	1 800 652 725	Call Center
Fire Brigade	000	Fire Brigade
Police	000	Police

Further information on who to contact regarding questions on APC and MGE products and the battery packs they contain are available via the APC online “ASK APC” website at:

[http://jpaa-en.apc.com/cgi-bin/jpaa\\_en.cfg/php/enduser/ask.php?ISOCountryCode=au](http://jpaa-en.apc.com/cgi-bin/jpaa_en.cfg/php/enduser/ask.php?ISOCountryCode=au)

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