MATERIAL SAFETY DATA SHEET

BATTERY PACK CONTAINING LEAD ACID BATTERY

Issue Date December 2012
Version 1.4

IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name:	**Schneider Electric IT USA (formerly APC by Schneider Electric, APC Sales and Service Corp.)**
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SECTION 1: HAZARDS IDENTIFICATION

Product Name:	Battery pack containing Lead Acid Battery
Other Names:	Lead Acid Battery Wet, non-spillable,
Manufacturer's Product Code:	**APCRBC110**
Chemical Family:	Electrical Storage Battery
VOL/WGT:	Varies with model
UN Number:	2800
Dangerous Goods Class:	8
Packaging Group	III
Hazchem Code:	2W
Use:	Electric Storage Battery

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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

Percentages of components are dependent on both the model of the RBC and the state of charge/discharge of the battery.

NOTE: The Sealed Lead Acid batteries used in APC by Schneider Electric Replacement Battery Cartridges (RBCs) are contained within cartridges and are sealed, non-spillable design. Under normal use and handling, there is no contact with the internal components of the battery or the chemical hazards. Under normal use and handling, these products do not emit regulated or hazardous substances. Misuse of the product, such as overcharging, may result in a discharge of battery electrolyte.

SECTION 3: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	The RBC is a manufactured article that contains discrete battery elements. The Batteries contain a sulfuric acid electrolyte (Electrolyte). The battery is a manufactured article consisting of a plastic, sealed case, terminals and flame arrestor vent caps. Case color varies. The electrolyte is contained within the case and consists of the electrolyte held captive in an adsorbed glass mat (AGM) or gel matrix. There is no "free" electrolyte to leak out of the case. Product is essentially odorless
Boiling Point:	(Electrolyte) 110ºC to 112ºC.
Melting Point	>149 ºC for plastic case
Vapor Pressure:	(Electrolyte) 13 to 22 mmHg@ 25ºC.
Specific Gravity:	(Electrolyte) 1.300 @25ºC.
Flashpoint:	(Electrolyte) Not Applicable.
Flammability Limits:	(Electrolyte) Not Applicable.
Solubility in Water:	(Electrolyte) Lead and Lead Oxide are insoluble in water. Sulfuric Acid is 100% soluble in water.

Other Properties:

Sulfuric 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:

SECTION 4: FIRST AID MEASURES

Battery Electrolyte

Inhalation	Remove from exposure. Seek medical attention.
Skin	Flush the exposed skin with large amounts of water for 15 minutes. Remove contaminated clothing. Seek medical attention.
Eyes	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.
Ingestion	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.
Workplace Facilities:	Provide emergency Showers and eyewash facilities.

Wash hands thoroughly after working with batteries and before eating, drinking or smoking.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: Not Applicable

Autoignition temperature: Not Applicable

Flammable Limits: (Hydrogen Gas) 4.1% LEL, 74.2% UEL

Fire Fighting: 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.

Explosion: 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.

Special Information: Sulfuric acid is an oxidizer and can ignite combustibles upon contact.

Hazardous Combustion: Acid mists and vapors, toxic fumes from burning plastic

SECTION 6: STABILITY AND REACTIVITY

Stable: Yes

Conditions to Avoid: 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.

Incompatible Materials: Heat, open flames, sparks, strong oxidizing or reducing agents.

Hazardous Decomposition: 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.

Hazardous Polymerization: Will not occur

SECTION 7: HANDLING AND STORAGE

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 should 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. Avoid storage in areas exposed to heat or solar buildup.

SECTION 8: EXPOSURE CONTROL/ PERSONAL PROTECTION

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.

SECTION 9: TOXICOLOGICAL INFORMATION

Toxicology Data: 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.

Eye Effects: Sulfuric Acid - Severe eye irritant

Skin Effects: 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.

Ingestion Effects: 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.

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.

SECTION 10: REGULATORY INFORMATION

NFPA HAZARD RATING FOR SULFURIC ACID:

Flammability (Red) =0
Health (Blue) =3
Reactivity (Yellow) =2
Sulfuric acid is water-reactive if concentrated.

Proposition 65 Notice: The State of California has determined that certain battery terminals contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. The only possible exposure would be to terminal posts on the battery. RBC terminals and other ancillary components do not contain lead.

CERCLA (Superfund) and EPCRA:

- Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA Emergency Planning Community Right to Know) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.
- Sulfuric acid is a listed “Extremely Hazardous Substance” under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs.
- EPCRA Section 302 notification is required if 1,000 lbs. of more of sulfuric acid is present at one site. The quantity of sulfuric acid will vary by battery type. Contact your Yuasa Battery representative for additional information.
- EPCRA Section 312 Tier 2 reporting is required for batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. or more.
- Supplier Notification: This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	70
Sulfuric Acid 7	664-93-9	10-30

SECTION 11: TRANSPORT INFORMATION

We hereby certify that all APC by Schneider Electric Replaceable Battery Cartridges (RBCs) contain Valve Regulated Lead-acid Rechargeable batteries that conform to the UN2800 classification as " Batteries, wet, Non-Spillable, and electric storage" as a result of passing the Vibration and Pressure Differential Test described in D.O.T., 49 CFR 173.159(d), and IMO/IMDG, and ICAO/IATA packing instruction 872 and note A67. The batteries are not restricted to IMO/IMDG code according to special provision 238.

APC by Schneider Electric RBCs, having met the related conditions are EXEMPT from hazardous goods regulations for the purpose of transportation by DOT, and IATA/ICAO, and therefore are unrestricted for transportation by any means. For all modes of transportation, each battery outer package is labeled "NON-SPILLABLE". All our Batteries are marked non-spillable.

SECTION 12: OTHER INFORMATION

California Proposition 65: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm, and during charging, strong inorganic acid mists containing sulfuric acid are evolved, a chemical Known to the State of California to cause cancer. Wash hands after handling.

Disposal Considerations: Refer to the local waste disposal authority for disposal of lead compounds, sulfuric 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/).

Update to GHS Safety Data Sheet (SDS) format: This Material Safety Data Sheet is scheduled to be updated to Global Harmonized Standard Safety Data Sheet format by March 1, 2014. Please check www.APC.com for versions of this new data sheet.

Disclaimer: Every endeavor has been made to ensure that the information contained in this publication is reliable and offered in good faith. It is meant to describe the safety requirements of our products and should not be construed as guaranteeing specific properties. Customers are encouraged to conduct their own tests as end user suitability of the product for particular uses is beyond our control. The information is not intended as an inducement to bargain and no warranty expressed or implied is made as to its accuracy, reliability or completeness. Schneider Electric Incorporated accepts no liability for loss, injury or damage arising from reliance upon the information contained in this data sheet except in conjunction with the proper use of the product to which it refers. Due care should be taken that the use and disposal of this product is in compliance with appropriate Federal, State and Local Government regulations.

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