Material Safety Data Sheet

Client	Power Stations Limited
Add. of Client	No.40, Shatian North Road, Kengzi, Pingshan New Area, Shenzhen, China
Description	Lithium Battery
Model /Type	PS435
Manufacturer	Power Stations Limited
Add. of Manufacturer	No.40, Shatian North Road, Kengzi, Pingshan New Area, Shenzhen, China
Nominal Voltage	3.0V, 28mAh
Date of Receipt	2014-12-31

Laboratory	Shenzhen ZRLK Testing Technology Co., Ltd.	
Address	3F, HengFengYuan Business Building, QunHui Road, Bao'an District, ShenZhen, P.R.C (518101)	
Approved Signatory	Williau. liu	
Inspected by	Bella.Wang	
Censored by	Frank. feng	

Section 1- Chemical Product and Company Identification

1. Chemical Product Identification

Product name: Lithium Battery

Model: PS435

2. Company Identification

Manufacturer /Supplier Name: Power Stations Limited

Address: No.40, Shatian North Road, Kengzi, Pingshan New Area, Shenzhen, China

Telephone number of the supplier:0086-0755-28536909

Emergency Telephone No.(24h): :0086-0755-28536909

e-mail address: master@pspower.net

This MSDS was prepared by Shenzhen ZRLK Testing Technology Co., Ltd.

Referenced documents: ISO 11014:2009 Safety data sheet for chemical products;

Section 2 – Hazards Identification

Preparation hazards and classification	When the battery is In extreme pressure deformation, high-temperature environment, overload, short-circuit condition, or disassemble the battery, an explosion of fire and chemical burn hazards may occur.
Apperance, Color, and Odor	Solid object with no odor, no color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed stainless steel enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact
Potential Health Effects:	**ACUTE (short term): see** Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns. **Inhalation:** A battery volatilizes no gas unless it was damaged. Damaged battery will volatilize little gas that may stimulate the respiratory tract or cause an anaphylaxis in serious condition. **Ingestion:** Swallowing battery will be Damaged to the respiratory tract and Cause chemical burns to the stomach; in serious conditions it will cause Permanent damage. **Skin:** In normal condition, Contact between the battery and skin will not cause any harms. Contact with a damaged battery may cause skin allergies or chemical burns. **Eye:** in normal condition, Contact between the battery and eyes will not cause any harms. However, the gas Volatilize from a damaged battery may be harmful to eyes. **CHRONIC (long term):** see Section 11 for additional toxicological data
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

Section 3 – Composition/Information on Ingredients

Lithium Battery is a mixture.

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Aluminum	30.38	7429-90-5
1,3-Butadiene, 2-methyl-, polymer with 2-methyl-1-propene, chlorinated	6.05	68081-82-3
Stainless steel	28.47	12597-68-1
Manganese	26.6	7439-96-5
Lithium	1.53	7439-93-2
Perchloric acid, lithium salt	1	7791-03-9
Polypropylene	1.43	9003-07-0
Graphite	3.61	7782-42-5
Carbon black	1	1333-86-4

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

(*)Main ingredients: Lithium hexafluorophosphate, organic carbonates

Section 4 – First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth

	thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

Section 5 – Fire-fighting Measures

Flammable Properties	►Hazardous Combustion Products: When burned, hazardous products of combustion including fumes of carbon monoxide, carbon dioxide, and fluorine can occur ►Extinguishing Media: Water, carbon dioxide, dry chemical, or foam. ►Basic Fire Fighting Procedures: Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. ►Unusual Fire & Explosion Hazards: This material does not represent an unusual fire or explosion hazard. Flash Point: Not available Automation Temperature: No Data. Flammability Limits in Air, Lower, % by Volume: 1.4 Flammability Limits in Air, Upper, % by Volume: 11
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	**Sensitivity to Mechanical Impact:** This may result in rupture in extreme cases **Sensitivity to Static Discharge:** Not Applicable
Specific Hazards arising from the chemical	Fires involving **Lithium Battery** was controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire
Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
NFPA	Health: 0 Flammability: 0 Instability: 0

Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate

	personal protective equipment as indicated in Section 8.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7 – Handling and Storage

►Handling
Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble,
modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material.
►Storage conditions (suitable, to be avoided): Do not place the battery cell near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery cell life and degrade performance.
Store in cool place (temperature: -20-45C, humidity: 45-75%).
Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids
Packing material (recommended, not suitable): Insulate and tear-proof materials are recommended.

Section 8 – Exposure Controls and Personal Protection

Engineering Controls	Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor. Keep away from heat and open flame. Store in a cool, dry place.
Personal Protective Equipment	**Respiratory Protection:** Not necessary under normal conditions. **Skin and body Protection:** Not necessary under normal conditions, Wear neoprene or nitrile rubber

	gloves if handling an open or leaking battery. **Hand protection:** Wear neoprene or natural rubber material gloves if handling an open or leaking battery. **Eye Protection:** Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

Section 9 - Physical and Chemical Properties

Physical State	Form: Solid	
	Color: Silvery white	
	Odour: Monotony	
Change in condition:		
pH, with indication of the concentration		Not applicable
Melting point/freezing point		Not available.
Boiling Point, initial boiling point and Boiling range:		Not available.
Flash Point		Not available.
Upper/lower flammability or explosive limits		Not available.
Vapor Pressure:		Not applicable
Vapor Density: (Air = 1)		Not applicable
Density/relative density		Not available.
Solubility in Water:		Insoluble
n-octanol/water partition coefficient		Not available.
Auto-ignition temperature		130°C
Decomposition temperature		Not available.
Odout threshold		Not available.
Evaporation rate		Not available.
Flammability (soil, gas)		Not available.
Viscosity		Not applicable

Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject **Lithium Battery** to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

Section 11 - Toxicological Information

In normal condition, contact with the battery is non-toxic.

Section 12 - Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impace/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

Section 13 – Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.
Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don’t disassembly the battery. Completely discharge containers (no tear drops, no powder

rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling;

Section 14 – Transport Information

This report applies to by sea, by air and by land;

The **Lithium Battery** according to Section II of PACKING INSTRUCTION 968 of the 2015 IATA Dangerous Goods regulations 56th Edition may be transported. and applicable U.S. DOT regulations for the safe transport of Li-ion Polymer Battery.

Lithium Battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

Cell and batteries offered for transport must be packed in inner packaging's that completely enclose the cell or battery; to provide protection from damage or compression to the batteries, the inner packaging's must be placed in a strong rigid outer packaging;

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

The package must be handled with care and that a flammability hazard exists if the package is damaged;

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations.

UN number of lithium battery: UN3480;

UN Proper shipping name/Description (technical name): Lithium ion batteries;

Marine pollutant(Y/N): N;

- The International Maritime Dangerous Goods (IMDG) Code (2012 Edition).

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit.

UN number of lithium battery: UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries

Marine pollutant(Y/N): Y;

Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

Section 15 - Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ Hazardous __V__ Non-hazardous

Section 16 - Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, concorde makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. users should make their own investigations to determine the suitability of the information for their particular purposes. although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

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