# Material Safety Data Sheet

## Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Li-ion Battery Pack
**Manufacture:** Duracell Licensed Factory, Shenzhen, China
**Address: c/o Duracell Licensed Partner PSA Parts Ltd, 2 Prince George's Road, Colliers Wood, London SW19 2PX**
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## 2. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name | Chemical Formula | CAS No. | In % by Weight |
|---|---|---|---|
| Lithium Cobalt Dioxide | $LiCoO_2$ | 12190-79-3 | 25~40 |
| Graphite | C | 7782-42-5 | 11-21 |
| Electrolyte (Lithium Hexafluorophosphate) | $LiPF_6$ | 21324-40-3 | 8~18 |

## 3. HAZARDS IDENTIFICATION

**Health Hazards (Acute and Chronic)**
These Chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.
**Sign/Symptoms of Exposure**
A shorted battery can cause thermal and chemical burns upon contact with the skin. May be a reproductive hazard.

## 4. FIRST-AID MEASURES

**Ingestion:** Do not induce vomiting or give food or drink. Seek medical attention immediately.
**Inhalation:** Provide fresh air and seek medical attention.
**Eyes contact:** Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.
**Skin contact:** Remove contaminated clothing and thoroughly wash with soap and plenty of water. If irritation persists, seek medical attention.

## 5. FIRE-FIGHTING MEASURE

**Flash Point:** N/A
**Auto-Ignition Temperature:** N/A
**Extinguishing Media:** Water, $CO_2$
**Special Fire-Fighting Procedures:** Self-contained breathing apparatus.

**Unusual Fire and Explosion Hazards:** Cell may vent when subjected to excessive heat-exposing battery contents.
**Hazardous Combustion Products:** Carbon monoxide, carbon dioxide, lithium oxide fumes.

## 6. ACCIDENTAL RELEASE MEASURES

**Steps to be Taken in case Material is Released or Spilled**
If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can.
The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.
**Waste Disposal method**
It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental protection agency and/or federal EPA.

## 7. HANDLING AND STORAGE

**Storage:** Do not place the cell or battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance.
Store in cool place (temperature: -20-45C, humidity: 45-75%).
**Mechanical Containment:** If potting or sealing the cell or battery in an airtight or watertight container is required, consult your PSA Parts Ltd Representative for precautionary suggestions. Do not obstruct safety release vents on cells. Encapsulation of batteries will not allow cell venting and can cause high pressure rupture.
**Handling:** 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. Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids Packing material (recommended, not suitable): Insulative and tear proof materials are recommended.
The contents of a leaking cell, when exposed to water, may result in a fire and/or explosion. Crushed or damaged cells and batteries may result in a fire.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering controls:** Investigate engineering techniques to reduce exposures use with adequate ventilation and recommended personal protective equipment.
**Eye/Face protection:** Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely wear chemical goggles and have eye flushing equipment available
**Skin protection:** Minimize skin contamination by following good industrial hygiene

practices. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.
**Respiratory protection:** Avoid breathing dust and processing vapors. When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic dusts.
**Special clothing:** Robber gloves.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**Type:** Li-ion battery

**Nominal Voltage/capacity:** 3.7V or 7.4V or 11.1V or 14.8V less than 100Wh

**Appearance characters:** with plastic, odorless, solid battery.

## 10. STABILITY AND REACTIVITY

**Stability:** Stable
**Conditions to Avoid:** Heating, mechanical abuse and electrical
**Hazardous Decomposition Products:** N/A
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

## 11. TOXICOLOGICAL INFORMATION

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

## 12. ECOLOGICAL INFORMATION

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

## 13. DISPOSAL CONSIDERATIONS

**APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION**
If battery are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not reaction or unconsumed lithium remaining in the spent battery. The battery must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

## 14. TRANSPORT/SHIPPING INFORMATION

The rechargeable Lithium-Ion battery as stated here are made in compliance to the requirements stated in the 60$^{th}$ edition of IATA Dangerous Goods Regulations Packing

Instruction 965 section IB, 966 Section II or 967 Section II such that they can be transported as a NOT RESTRICTED (non-hazardous/non-dangerous) goods.

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 (60th Edition)
- The International Maritime Dangerous Goods (IMDG) Code
- The UN Recommendation on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium Batteries (UN3480)
- Lithium Ion Batteries "Not restricted as per ADR / IMDG SP 188"

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned.

## 15. REGULATORY INFORMATION

**Law Information**
*Dangerous Goods Regulation*
*Recommendations on the Transport of Dangerous Goods Model Regulations*
*International Maritime Dangerous Goods*
*Classification and Code of Dangerous Goods*
*OSHA Hazard Communication Standard Status*
*Toxic Substances Control Act (TSCA) Status*

In accordance with all Federal, State and Local Laws.

## 16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designate herein.

For more information, please contact PSA Parts Ltd sales representative.
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**MSDS Updated : Jan 02 2019**