

# SAFETY DATA SHEET

Product Name: Lithium-ion Battery

Issue: 22 Dec 2022    Review: 25 Apr 2024

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:**                      **Lithium-ion Battery**

Nominal Voltage: 3.7V  
Nominal capacity: 2600mAh  
Wh rating: 9.62Wh

**APPLICATIONS:**                      For Stock No.23846    FOLDABLE SLIM LIGHT

**SUPPLIER:**                              Draper Tools Ltd

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Chandlers Ford  
Eastleigh  
Hampshire  
SO53 1YF

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Opening hours 8:30-17:00 Monday – Friday.

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[www.drapertools.com](http://www.drapertools.com)

## 2. HAZARDS IDENTIFICATION

Emergency Overview (including Signs and Symptoms, Route(s) of Entry, etc.)

Intact batteries present no specific hazards.

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.):

Burning batteries: AVOID inhalation of toxic fumes. Burning batteries emit toxic fumes, which are irritating to the lungs.

Leaking batteries: AVOID exposure to leaking electrolyte, it can cause severe irritation and/or damage to the skin, mucous membrane or eyes.

Chronic Health Effects (e.g., Carcinogenicity, Teratology, Reproduction, Mutagenicity, etc.):

Cobalt: Suspected human carcinogenic agent.

Medical Conditions Generally Aggravated by Exposure: None.

## 3. COMPOSITION INFORMATION

| Hazardous Ingredients<br>(Chemical Name) | Concentration /<br>Concentration range | CAS Number |
|--|--|------------|
| Electrolyte                              | 5-20%                                  | 124-68-5   |
| Lithium hexafluorophosphate              | 0.05-5%                                | 21324-40-3 |

|                      |        |            |
|----------------------|--------|------------|
| Ethylene carbonate   | 5%     | 96-49-1    |
| Propylene carbonate  | 5%     | 108-32-7   |
| Diethyl carbonate    | 5%     | 105-58-8   |
| Ethyl propionate     | 5%     | 105-37-3   |
| PVDF                 | 1%     | 24937-79-9 |
| Copper               | 3-15%  | 7440-50-8  |
| Aluminium            | 2-10%  | 7429-90-5  |
| Lithium cobalt Oxide | 20-50% | 12190-79-3 |
| Graphite             | 10-30% | 7782-42-5  |

#### 4. FIRST AID MEASURES

|              |  |
|--------------|--|
| Ingestion    | If swallowed, obtain medical attention immediately.  |
| Inhalation   | If battery is burning, leave the area immediately. If exposed to fumes, seek medical attention promptly.   |
| Eye Contact  | Rinse eyes with water for 15 minutes and seek medical attention.   |
| Skin Contact | If battery electrolyte leaks on to the skin flush the affected area for at least 15 minutes with clean water. DO NOT attempt to neutralize. Seek medical attention promptly. |
| Ingestion    | Drink milk/water and induce vomiting; seek medical attention.  |

#### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** N/A

**Flashpoint:** Method:

**Autoignition Temperature:**

**Flammable Limits:** N/A

**Lower flammable limit:** Upper flammable limit:

**Hazardous Combustion Products:** Burning batteries may emit acrid smoke irritating fumes, and toxic fumes of fluoride.

**Extinguishing Media:** Carbon dioxide (CO<sub>2</sub>) or dry chemical fire extinguisher, 10-B: C.

**Fire Fighting Instructions:**

**Personnel:** Fight the fire in a defensive mode, while exiting the area. When using a CO<sub>2</sub> fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO<sub>2</sub> extinguishing agent.

**Firefighters:** Use a self-contained breathing apparatus (SCBA).

## **6. ACCIDENTAL RELEASE MEASURES**

Small Spill: If batteries show signs of leaking, AVOID skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean-up.

On Land

Place material into suitable containers and call local fire/police department.

In Water

If possible, remove from water and call local fire/police department.

## **7. HANDLING AND STORAGE**

Handling: Recharge batteries IAW methods specified in applicable technical manuals.

DO NOT:

Over charge this battery.

Abuse, mutilate or short circuit the battery.

Storage: Gain approval for storage areas from the Installation Fire Department. Store batteries in a cool (i.e., 130F), dry and well-ventilated area.

DO NOT:

Store batteries in direct sunlight or under hot conditions.

Smoke and keep batteries a way from open flame or heat.

Store batteries in the same stacks with hazardous materials.

Store batteries in office areas, or other areas where personnel congregate.

Work/Hygienic Practices: Thoroughly wash hands after cleaning-up a battery spill (i.e., leaking or venting batteries). NO eating, drinking or smoking in battery storage areas.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Engineering Controls

Keep away from heat and open flame. Store in a cool dry place.

Personal Protection

Respirator: Not required during normal operations. SCBA required in the event of a fire.

Eye/face protection: Not required beyond safety practices of employer.

Gloves: Not required for handling of cells.

Foot protection: Steel toed shoes recommended for large container handling.

## **9. PHYSICAL AND CHEMICAL PROPETIES**

Boiling Point @ 760 mm Hg (°C): NA

Vapor Pressure (mm Hg @ 25°C): NA

Vapor Density (Air = 1): NA

Density (grams/cc): NA

Percent Volatile by Volume (%): NA

Evaporation Rate (Butyl Acetate = 1): NA

Physical State: NA

Solubility in Water (% by Weight): NA

pH: NA

Appearance and Odor: geometric solid object

## 10. STABILITY AND REACTIVITY

Reactivity

None

### INCOMPATIBILITIES

None during normal operation. Avoid exposure to heat, open flame, and corrosives.

Hazardous Decomposition Products

None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

Conditions

Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

## 11. TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

| Sensitization | Teratogenicity | Reproductive toxicity | Acute toxicity |
|---------------|----------------|-----------------------|----------------|
| NO            | NO             | NO                    | NO             |

This product does not contain any kinds of the following substances and halogen-type

flame retardants including Chlorine and Bromide type harmful flame retardants which are

listed in Appendix of TCO documents and relevant international ECO requirements:

Polybromated Biphenyls (PBB)

Polybromated Biphenyl Ethers (PBBE)

Polybromated Biphenyl Oxides (PBBO)

Polybromated Diphenylethers (PBDE)

Polychlorinated Biphenyl (PCB)

Polychlorinated Diphenylethers (PCDE)

Tetrabromophenol A (TBBPA)

Asbestos, Antimonytrioxide, Dioxine

None of the following substances will be exposed, leaked, or emitted during transportation, storage or any operation and any temperature condition:

Chlorinated Fluorohydrocarbon (FCKW)

Acrylonitrile

Styrol Phenol Benzol

Mercury of greater than 0.0001 wt% for alkaline battery

Mercury of greater than 0.0005 wt% for other battery

Lithium content of greater than 0.5g/battery cell Cadmium, lead, and other

harmful heavy metal

This product does not contain mercury and lithium-metal.

Mercury content:<

Lithium-Ion content: <

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

## **12. ECOLOGICAL INFORMATION**

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

## **13. DISPOSAL INFORMATION**

Recommended methods for safe and environmentally preferred disposal:

Product (waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

RCRA Waste Code: Nonregulated

Dispose of according to all federal, state, and local regulations.

## **14. TRANSPORTATION INFORMATION**

For lithium-ion batteries, Lithium-Ion Batteries contained in equipment or Lithium Batteries packed with equipment, UN ID number 3481.

UN Proper shipping name: Lithium-ion batteries

Mode of transport: to air, sea, railway, highway-based.

In the case of transportation, confirm no leakage and no overspill from a container.

Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 7-HANDLING AND STORAGE also. We regard to air 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 (64 Edition 2023: complies with current IATA packing instruction of PI965- 967);

- The International Maritime Dangerous Goods(IMDG) Code;
- 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 Transportation's Research and Special Programs Administration(RSPA), and The UN Recommendations on the Transport of Dangerous Goods Model

Regulations and the Manual of Tests and Criteria.

- The results of the UN Recommendation on the Transport of Dangerous Goods
- Comply with SP188 of Imdg code, Mode of transport: to air, sea, railway, highway-based.
- The article is not subject to other provisions of IMO IMDG Code according to special provision 188.

| Manual of Test and Criteria (38.3 Lithium battery) |                        | Test Results | Remark        |
|--|------------------------|--------------|---------------|
| No.  | Test Item              |              |               |
| T1   | Altitude Simulation    | Pass         |               |
| T2   | Thermal Test           | Pass         |               |
| T3   | Vibration              | Pass         |               |
| T4   | Shock                  | Pass         |               |
| T5   | External Short Circuit | Pass         |               |
| T6   | Impact                 | Pass         |               |
| T7   | Overcharge             | Pass         | For Pack Only |
| T8   | Forced discharge       | Pass         | For Pack Only |

## 15. REGULATORY INFORMATION

OSHA hazard communication standard (29 CFR 1910.1200)

\_\_\_\_\_Hazardous \_\_\_\_\_Non-hazardo

## 16. OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make 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. 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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