# SAFETY DATA SHEET



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**PRODUCT NAME:** LI-ION POLYMER BATTERY Model: 102540
Nominal Voltage 3.7V Capacity: 1200mAh Wh rating: 4.44Wh

**APPLICATIONS:** For Stock No. 28236 HEAD TORCH

**SUPPLIER:** **Draper Tools Ltd**
Hursley Road
Chandlers Ford
Eastleigh
Hampshire
SO53 1YF
www.drapertools.com

**Emergency telephone number:** Draper Helpline +44 (0) 2380 494344
Opening hours 8:30-17:00 Monday – Friday.

## 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.

**Appearance, Colour, and Odour**

Solid object with no odour, no colour.

**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 if 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

Li-ion Polymer Battery is a mixture.

| Hazardous Ingredients (Chemical Name) | Concentration or concentration ranges (%) | CAS Number |
|---|---|---|
| Lithium Cobalt Oxide (LiCoO2) | 35.5 | 12190-79-3 |
| Aluminium Foil (Al) | 9 | 7429-90-5 |
| 1.1-Difluoroethylenepolymer | 1 | 24937-79-9 |
| Graphite (C) | 18 | 7782-42-5 |
| Copper Foil (Cu) | 1 | 57440-50-8 |
| Styrene-Butadiene polymer | 1.5 | 9003-55-8 |
| Lithium hexafluorophosphate | 2.8 | 21324-40-3 |
| Ethylene carbonate | 5 | 96-49-1 |

| | | |
|---|---|---|
| Dimelene carbonate | 5 | 616-38-6 |
| Carbonate, methyl ethyl | 5 | 623-53-0 |
| Nickel | 2.2 | 7440-02-0 |

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: Firefighting measures

**Flammable Properties**

In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.

**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 Li-ion Polymer Battery can be 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 measure

**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**

Do not dismantle, open or shred secondary Li-ion Polymer Battery;

Don't handling Li-ion Polymer Battery with metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

**Storage**

If the Li-ion Polymer Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion Polymer Battery periodically. 3 months: -10℃~+40℃, 45 to 85%RH And recommended at 0℃~ +35℃ for long period storage. The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

Do not storage Li-ion Polymer Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose Li-ion Polymer Battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

## SECTION 8: Exposure controls/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: Prismatic

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 Boilingrange:** | 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** | Not available. |

| | |
|---|---|
| **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 Li-ion Polymer Battery to mechanical shock.

Vibration encoutered 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 orexposed 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, craped 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 Li-ion Polymer Battery must be of a design type proved to meet the testing requirements of the Manual of test and criteria, Part III, subsection 38.3.

The Li-ion Polymer Battery according to Section II of PACKING INSTRUCTION 965-967 of the 2021IATA Dangerous goods regulations 62nd Edition may be transported. and applicable U.S. DOT regulations for the safe transport of Li-ion Polymer Battery.
Li-ion Polymer Battery shall be protected 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 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.
Regarding 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: UN3481.**
**UN Proper shipping name/Description (technical name):** Lithium-ion batteries packed with equipment & Lithium-ion batteries contained in equipment.
- The International Maritime Dangerous Goods Code 2018 Edition (Amdt.39-18)
For lithium-ion batteries by sea if 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 packed with equipment & Lithium-ion batteries contained in equipment.
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)
√ Non-hazardous

## SECTION 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.

*** End of MSDS ***