

**MATERIAL SAFETY DATA SHEET**

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT IDENTIFICATION**

18650 Lithium ion cell 1500mAh

APPLICATIONS: For Stock No. 83079 Li ion Battery

SUPPLIER: Draper Tools Ltd

Hursley Road, Chandlers Ford, Eastleigh, Hampshire  
SO53 1YF

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

**2. HAZARDS IDENTIFICATION**

Lithium ion cells are not hazardous when used according to the instructions of the manufacturer under normal conditions. In case of abuse, there is a risk of rupture, fire, heat, or leakage of internal components, which could release hazardous materials.

**SYMPTOMS OF EXPOSURE**

Skin contact

No effect under routine handling and use.

Skin absorption

No effect under routine handling and use.

Eye contact

No effect under routine handling and use.

Inhalation

No effect under routine handling and use.

**REPORTED AS CARCINOGEN**

Not applicable

**3. COMPOSITION INFORMATION**

INGREDIENTS	%	CAS NUMBER
Cobalt oxide	<30	1307-96-6
Manganese dioxide	<30	1313-13-9

Document No.: TPCM2016-02

Issued Date: 2016 .Apr.01

INGREDIENTS	%	CAS NUMBER
Nickel oxide	<30	1313-99-1
Carbon	<30	7440-44-0
Polyvinylidene Fluoride (PVDF)	<10	24937-79-9
Aluminum foil	2-10	7429-90-5
Copper foil	2-10	7440-50-8
Electrolyte(*)	<20	
Aluminium and inert materials	5-10	

#### **FURTHER INFORMATION**

For information purposes:

(\*) Main ingredients: Lithium hexafluorophosphate , organic carbonates

Because of the cell structure the dangerous ingredients will not be available if used properly.

During charge process a lithium graphite intercalation phase is formed.

Mercury content: Hg < 0.1mg/kg

Cadmium content: Cd < 1mg/kg

Lead content: Pb < 10mg/kg

#### **4. FIRST-AID MEASURES**

**INHALATION, EYE CONTACT, and SKIN CONTACT:** Not a health hazard.

##### **INGESTION**

If swallowed, obtain medical attention immediately.

If exposure to internal materials within cell due to damaged outer casing, the following actions are recommended.

##### **INHALATION**

Leave area immediately and seek medical attention.

##### **EYE CONTACT**

Rinse eyes with water for 15 minutes and seek medical attention.

##### **SKIN CONTACT**

Wash area thoroughly with soap and water and seek medical attention.

##### **INGESTION**

Drink milk/water and induce vomiting; seek medical attention.

#### **5. FIRE FIGHTING MEASURES**

##### **GENERAL HAZARD**

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Cell is not flammable but internal organic material will burn if the cell is incinerated.

Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.

#### EXTINGUISHING MEDIA

Use extinguishing media suitable for the materials that are burning.

#### SPECIAL FIREFIGHTING INSTRUCTIONS

If possible, remove cell(s) from fire fighting area.

If heated above 120°C, cell(s) can explode/vent.

#### FIREFIGHTING EQUIPMENT

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

### **6. ACCIDENTAL RELEASE MEASURES**

#### 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

No special protective clothing required for handling individual cells.

#### STORAGE

Store in cool, dry place.

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

#### ENGINEERING CONTROLS

Keep away from heat and open flame.

#### PERSONAL PROTECTION

Store in a cool dry place.

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Respirator:

Not required during normal operations.  
event of a fire.

SCBA required in the

Eye/face protection:

Gloves:

Foot protection:

Not required beyond safety practices of employer.

Not required for handling of cells.

Steel toed shoes recommended for large container handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form: Solid

Color: Various

Odor: Odourless

Important health, safety and environmental information

Test method

pHValue	N/A
Flash point	N/A
Lower explosion	N/A
Vapor pressure	N/A
Density	N/A
Water solubility	Insoluble
Ignition temperature	N/A

## 10. STABILITY AND REACTIVITY

REACTIVITY

None

INCOMPATIBILITIES

None during normal operation.

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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 TO AVOID

Avoid exposure to heat and open flame.

Do not puncture, crush or incinerate.

#### 11. TOXICOLOGICAL INFORMATION

Cells are not hazardous when used properly. In case of fire or leakage combustion and decomposition products may cause irritation and toxicity to skin, eye and respiratory systems.

Toxicity data of some substance is listed:

Hydrogen fluoride:

Extremely toxic, May be fatal if inhaled or ingested. Readily absorbed through the skin contact may be fatal. Possible mutagen. LCL0: 50 ppm/30m (human beings), LC50: 1276 ppm/1h (rats).

Carbon and graphite:

Slightly hazards in case of skin contact (irritant), ingestion, inhalation, which will cause chronic damage to upper respiratory tract and cardiovascular system.

Copper:

File No./Rev.: MSDS—163/C

Dust may cause respiratory irritation.

LD50: 3.5 mg kg<sup>-1</sup>(mouse).

#### 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.

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RCRA Waste Code:

No regulated

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

#### 14. TRANSPORTATION INFORMATION

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

The International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 965, Section I B (2015 Edition),

The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section IB (57th Edition, 2016)

The International Maritime Dangerous Goods (IMDG) Code (2012 Edition),  
US Hazardous Materials Regulations 49 CFR(Code of Federal Regulations)

Sections 173-185 Lithium batteries and cells,

The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3  
Lithium batteries, Rev.5, Amend.1

UN No. 3480

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. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria.

Test results of the UN Recommendation on the Transport of Dangerous Goods

Manual of Test and Criteria(38.3 Lithium battery)		Test results	Remark
No.	Test items		
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 and single cell battery only
T8	Forced Discharge	Pass	

#### 15. REGULATORY INFORMATION

For shipping regulations see section 14.

#### 16. OTHER INFORMATION

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.

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Latest Edition: 2016-Apr-01