

Material Safety Data Sheet**Button Type CR Lithium cell**

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IDENTITY (As Used on Label and List)

Note : Blank spaces are not permitted if any item is not applicable or no information is available, the space must be marked to indicate that.

Section I

Supplier's Name

ABOOM INDUSTRIAL CO., LTD.

Section II - Hazardous Ingredients / Identity Information

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
	3.5 mg/m ³ TWA	3.5 mg/m ³ TWA	0-1
1,2-Dimethoxyethane	None established	None established	0-6
1,3-Dioxolane	None established	None established	0-8
Graphite	15 mg/m ³ TWA (total dust) 5 mg/m ³ TWA (respirable fraction)	2 mg/m ³ TWA (respirable fraction)	0-3
Lithium or Lithium Alloy	None established	None established	1-6
Lithium Perchlorate	None established	None established	0-3
Lithium Trifluoromethanesulfonate	None established	None established	0-3
Lithium Trifluoromethanesulfonimide	None established	None established	0-3
Manganese Dioxide	5 mg/m ³ Ceiling (as Mn)	0.2 mg/m ³ TWA (as Mn)	12-42
Propylene Carbonate	None established	None established	0-8

Section III - Physical / Chemical Characteristics

Boiling Point N.A.

Specific Gravity (H₂O=1) N.A.

Vapor Pressure (mm Hg) N.A.

Melting Point N.A.

Vapor Density (AIR=1) N.A.

Evaporation Rate (Butyl Acetate) N.A.

Solubility in Water N.A.

Appearance and Odor Cylindrical Shape, odorless

Section IV - Fire and Explosion Hazard Data	
Flash Point (Method Used)	N.A.
Flammable Limits	N.A.
LEL	N.A.
UEL	N.A.
Extinguishing Media	N.A.
Special Fire Fighting Procedures	N.A.
Unusual Fire and Explosion Hazards	
Do not dispose of battery in fire - may explode.	
Do not short-circuit battery – may cause burns.	
Section V – Reactivity Data	
Stability	Unstable
Conditions to Avoid	Stable
Incompatibility (Materials to Avoid)	
Hazardous Decomposition or Byproducts	
Hazardous	
Polymerization May Occur	Conditions to Avoid
Will Not Occur	
Section VI - Health Hazard Data	
Route(s) of Entry	
Inhalation	N.A.
Skin	N.A.
Ingestion	N.A.
Health Hazard (Acute and Chronic) / Toxicological information	
In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.	
In contact with electrolyte can cause severe irritation and chemical burns.	
Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.	
Section VII – First Aid Measures	
First Aid Procedures	
If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.	
If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.	
If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.	

Section VIII - Fire and Explosion Hazard Data

Flash Point (Method Used) N.A.

Ignition Temp. N.A.

Flammable Limits N.A.

LEL N.A.

UEL N.A.

Extinguishing Media Carbon Dioxide, Dry Chemical or Foam extinguishers

Special Fire Fighting Procedures N.A.

Unusual Fire and Explosion Hazards Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.

Section IX – Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

Section X – Handling and Storage

Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

Keep batteries between -30°C and 35°C for prolong storage.

Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP

N.A.

STEP

N.A.

Respiratory Protection (Specify Type)

N.A.

Ventilation Local Exhausts

N.A.

Special

N.A.

Mechanical (General)

N.A.

Other

N.A.

Protective Gloves

N.A.

Eye Protection

N.A.

Other Protective Clothing or Equipment

N.A.

Work / Hygienic Practices

N.A.

Section XII – Ecological Information

N.A.

Section XIII – Disposal Method

Dispose of batteries according to government regulations.

Section XIV – Transportation Information

Shipping name: Lithium batteries

UN Number: UN3090 (UN3091 for lithium batteries in equipment)

Hazard Classification: Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special provision
International	Air	IATA, ICAO	Packing instruction 968-970
International	Marine	IMO	SP188
U.S.A.	Air, Rail, Road, Marine	DOT	49 CFR Section 173.185

Their regulations are based on the UN Recommendations. Each special provision specifies exceptions and packaging for lithium batteries shipping. All CR batteries of Aboom meet all special provisions.

Ref Summary of Packing Instruction (IATA Dangerous Goods Regulations 50th Edition)
The minimum requirements necessary to non-restricted goods are as follows:

- 1) For a lithium metal or lithium alloy cell, the lithium content is not more than 1g, and for a lithium-ion cell, the equivalent lithium content is not more than 2.0g;
- 2) Each cell or battery is of the type proved to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3;
- 3) Each package must be displayed a battery handling label. (Telephone No. must be printed for emergency call on the handling label);
- 4) Each Consignment must be accompanied with a declaration of non-dangerous goods document (Telephone No. must be printed for emergency call on the document)
- 5) Each package must be capable of withstanding a 1.2m drop test.
Aboom will offer the certificate of (1) and (2). If our package is used for transport, we offer the certificate of (5).

- (i) Transportation of batteries installed in equipment as non-restricted goods
If each package contains no more than 4 cells or 2 batteries, the requirement is the same as current. But for other cases of cell or battery quantity, the requirements are 1), 2), 3) and 4).
- (ii) Transport of batteries packed with equipment as non-restricted goods
Regardless of the battery quantity, the requirements (1) and (5) shall be

satisfied. Also the battery quantity within one package is restricted in air transport to the minimum quantity to operate the application and 2 batteries as spares.

- (iii) Transportation of batteries only as non-restricted goods. Regardless of the battery quantity, the requirements (1) to (5) shall be satisfied.

Section XV – Regulatory Information

N/A

Section XVI – Other Information

If you want further information, PLS contact Aboom representative

Section XVII – Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if

exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.