



**MATERIAL SAFETY DATA SHEET**  
(form according to EEC Directive 93/112/EC)

**1. Identification of the product and supplier**

Identification of the product: CR123A Lithium, Manganese Dioxide (Li-MnO<sub>2</sub>)  
non-rechargeable batteries  
Manufacturer: Able New Energy Co., Ltd  
Address: ABLE Industrial Zone, Xintang Village  
Guanlan Town-Baoan District  
518110 Shenzhen China  
Telephone: +86-755-29807563  
Fax: +86-755-29807510  
E-mail: able@able-battery.com

**2. Composition and information about the ingredients**

Active materials

	Appr . Percent of Total Weight (%)
Lithium (Li)	2.71 (0.523g)
Carbon black (C)	3.34
Electrolyte	12.75
Manganese Dioxide (MnO <sub>2</sub> )	30.32

Passive materials

		Appr . Percent of Total Weight (%)
Base Metal	Steel	48.87
Others	Plastic	2.01

**3. Hazards identification**

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The Lithium-Manganese dioxide batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact, Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads



to the activation of safety valves and/or the rupture of the battery containers. Electrolyte leakage or battery vent/explosion/fire may follow, depending upon the circumstance.

#### 4. First aid measures

**Inhalation:** Remove from exposure, rest and keep warm, In severe cases obtain medical attention.

**Skin contact:** Wash off skin thoroughly with tap water. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.

**Eye contact:** Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention

**Ingestion:** Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

**Further treatment:** All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a Doctor.

#### 5. Fire-fighting measures

CO<sub>2</sub> extinguishers or copious quantities of water-based foam can be used to cool down burning Li-MnO<sub>2</sub> cells and batteries, as long as the extend of the fire has not progressed to the point that the Lithium metal they contain is exposed.

Use only metal (Class D) extinguishers on raw lithium.

Extinguishing Media: Use water or CO<sub>2</sub> on burning Li-MnO<sub>2</sub> cells or batteries and class D fire extinguishing agent only on raw lithium.

#### 6. Accidental release measures

Do not breathe vapours or touch liquid with bare hands.

If the skin has come into contact with the electrolyte it should be washed thoroughly with water.

Earth or sand should be used to absorb the exudation, seal leaking battery and earth in a heavy duty polythene bag and dispose of as Special Waste in accordance with local regulations.

#### 7. Handling and storage

**Handling:** Do not short circuit or expose to temperatures above the temperature rating of battery. Do not recharge, over-discharge, force discharge, immerse, puncture or crush.

**Storage:** Store in a cool place but prevent condensation on cells and batteries. Elevated temperatures can result in shortened battery life and degrade performance.

Do not store batteries in high humidity environments for long periods of times.



**Other:** Lithium Manganese dioxide batteries are not rechargeable and should not be tentatively charged.

Follow Manufacturers recommendations regarding maximum recommended currents and operating temperature range.

Applying pressure on deforming the battery may lead to disassembly.

## 8. Exposure controls/personal protection

**Respiratory protection:** In all fire situations, use self-contained breathing apparatus.

**Hand protection:** In the event of leakage wear gloves.

**Eye protection:** Safety glasses are recommended during handling.

**Other:** In the event of leakage, wear chemical apron.

## 9. Physical and chemical properties

**Appearance:** Cylindrical shape

**Odour:** If leaking, smells of medical ether.

**pH:** Not applicable as supplied.

**Flash Point:** Not applicable unless individual components exposed.

**Flammability:** Not applicable unless individual components exposed.

**Relative density:** Not applicable unless individual components exposed

**Solubility (water):** Not applicable unless individual components exposed

**Solubility (other):** Not applicable unless individual components exposed

## 10. Stability and reactivity

Product is stable under conditions described in Section 7.

**Conditions to avoid:** Heat above 70°C or incinerate. Deform. Mutilate. Crush. Crush. Pierce. Disassemble. Recharge. Short circuit. Expose over a long period to humid conditions.

**Materials to avoid:** Oxidising agents, alkalis, water.

**Hazardous reactions:** Lithium metal reacts with water to produce highly flammable gasses.



**Hazardous decomposition reactions:** Toxic Fumes, and may form peroxides.

### 11. Toxicological information

**Signs & symptoms:** None, unless battery ruptures. In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

**Inhalation:** Lung irritant.

**Skin contact:** Skin irritant

**Eye contact:** Eye irritant

**Ingestion:** Poisoning if swallowed

**Medical conditions generally aggravated by exposure:** In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

### 12. Ecological information

**Mammalian effects:** None known at present.

**Eco-toxicity:** None known at present.

**Bioaccumulation potential:** Slowly Bio-degradable.

**Environmental fate:** None known environmental hazards at present.

### 13. Disposal consideration

Do not incinerate, or subject cells to temperature in excess of 70°C, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

### 14. Transport information

**Label for conveyance:** For the single cell batteries and multicell battery packs which are non-restricted to transport. Use lithium batteries inside label.

For the single cell batteries and multicell batteries and multicell battery packs which are non-restricted to transport (assigned to the Miscellaneous Class 9), Miscellaneous Dangerous Goods and UN Identification Number labels.

In all cases, refer to the product transport certificate issued by the Manufacturer.

**UN Number:** UN3090

**Shipping name:** Lithium Batteries.



**Hazard Classification:** Depending on their lithium metal content, some single cells and small multicell battery packs may be non-assigned to Class 9 (Refer to Transport Certification).

**Packing Group:** II

**IMDG Code:**

**CAS:**

**EmS No:** 4.1-06

**Marine pollutant:** No

**ADR class:** Class 9

## 15. Regulation information

Here below are shown the nature of special risks and the advices of caution.

### Nature of special risks

- R14/15 (reacts with water and yields flammable gases)
- R21 (harmful in contact with skin)
- R22 (harmful if swallowed)
- R35 (causes severe burns)
- R41 (risk of serious damage to the eye)
- R42/43 (may cause sensitisation by inhalation and skin contact)

### Safety advices

- S2 (keep out of reach from children)
- S8 (keep away from moisture)
- S22 (do not breathe dust)
- S24 (avoid contact with skin)
- S26 (in case of contact with eyes, rinse immediately with plenty of water and seek medical attention)
- S36 (wear suitable protective clothing)
- S37 (wear suitable gloves)
- S43 (in case of fire use extinguisher type D. DO NOT USE WATER)
- S45 (in case of incident or indisposition seek medical attention)

## 16. Other information

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled, However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability, or completeness of the information contained herein.



This information relates to the specific materials designated and may not be valid to such material used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.

Able does not accept liability for any damage that may occur, whether direct, incidental or consequential, from the use of this information. Able does not offer warranty against patent infringement.