

# MATERIAL SAFETY DATA SHEET

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**CR123A - 3V**  
July 13, 2016



Test report no.: UN10-0752-1

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. However, GBT GmbH makes no warranty expressed or implied.

## **Section 1 - Product identification**

Type: **CR123A - 3V**  
Chemical system: lithium manganese dioxide  
Approx. weight: 15.8 g  
Designed for recharge: no

## **Section 2 - Composition/information on ingredients**

<b>Ingredient</b>	<b>CAS NO.</b>	<b>Content (wt%)</b>
Lithium	7439-93-2	2.71
Propylene Carbonate	108-32-7	6.5
Manganese dioxide	1313-13-9	30.32
1,2-Dimethoxyethane	110-71-4	7.2
Lithium perchlorate	7791-03-9	1.2
Graphite	7782-72-5 1333-86-4	5.0

## **Section 3 - Hazards identification**

This contains lithium, organic solvent and other combustible materials. For this reason, improper handling of the battery could lead to distortion, leakage\*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(\*Leakage is defined as an unintended escape of liquid from a battery.)

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## **Section 4 - First aid measures**

None unless internal materials exposure. If contents are leaked out, observe following instructions:

**Inhalation:** Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.

**Skin:** Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.

**Eyes:** Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately.

**Ingestion:** If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

## **Section 5 - Fire fighting measures**

**Extinguishing media:** Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that a lots of lithium batteries are burning in a confined space, use a smothering agent.

**Firefighting procedure:** Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

## **Section 6 - accidental release measures**

**Accidental releases:** Do not breathe vapors or touch liquid with bare hands (see section 4).

**Waste disposal methods:** Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

**Other:** Follow North American Emergency Response Guide (NAERG) #138 for cells involved in an accident, cells that have vented, or have exploded.

## **Section 7 - Handling and storage**

**Handling:** Never swallow. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery. Never bring fire close to battery liquid. Never keep in touch with battery.

**Storage:** Never let the battery contact with water. Never store the battery in hot and high humid place.

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## **Section 8 - Exposure controls, personal protection**

Respiratory protection:		n/a
Ventilation:	local exhaust	n/a
	mechanical	n/a
	special	n/a
	other	n/a
Eye protection:		n/a
Protective gloves:		n/a
Other protective clothing:		n/a

## **Section 9 - Physical/chemical characteristics**

Boiling point:	1,2-Dimethoxyethane:	83°C
Vapor pressure:	1,2-Dimethoxyethane:	6.40 (20°C)
Vapor density:	1,2-Dimethoxyethane:	3.11
Solubility in water:	1,2-Dimethoxyethane:	diffluence contact with water
Specific gravity:	1,2-Dimethoxyethane:	1.63
Melting point:	1,2-Dimethoxyethane:	-67°C
Evaporation rate:		n/a
Water reactive:	1,2-Dimethoxyethane:	diffluence contact with water
Appearance & odor:	1,2-Dimethoxyethane:	achromatism liquid; slight aether odor

## **Section 10 - Stability and reactivity**

Stability:	stable
Incompatibility:	water
Hazardous polymerization:	will not occur
Condition to avoid:	see section 7
Hazardous decomposition or byproducts:	hydrogen

## **Section 11 - Toxicological information**

Acute toxicity:	1,2-Dimethoxyethane
	LC <sub>50</sub> inhalation: n/a
	LD <sub>50</sub> : n/a
	Eye effects: corrosive
	Skin effects: corrosive

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## **Section 12 - Ecological information**

Aquatic toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater or groundwater.

## **Section 13 - Disposal condition**

The battery may be regulated by national or local regulation. Please follow the instructions of proper regulation. As electric capacity is left in a discarded battery and it comes into contact with other metals, it could lead to distortion, leakage, overheating or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

## **Section 14 - Transportation information**

Lithium battery model CR123A is considered as "Not Restricted" cargo because they comply with Section II of PI968 & IATA Dangerous Goods Regulations 53rd Edition 2012.

Shipping name: Lithium metal batteries  
UN number: UN3090  
Hazard classification: Class 9 (miscellaneous)

Organizations governing the transport of lithium batteries:

<b>Area</b>	<b>Method</b>	<b>Organization</b>	<b>Special Provision</b>
International	Air	IATA, ICAO	Best Practice 009
International	Water	IMO	188
U.S.A	Air, Rail, Highway, Water	DOT	49 CFR Section 173.185

These regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for shipping lithium batteries. All batteries meet all special provisions Ref) Section II of PI968 (IATA Dangerous Goods Regulations 53rd Edition 2012).

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If all of following 3 requirements are satisfied, lithium metal batteries can be transported as "Not Restricted" cargo.

1) Lithium weight or equivalent lithium content must be less than value in table.

	Lithium metal cells / batteries (lithium weight)
Cell	1 g or less
Battery	2 g or less

Equivalent lithium content (g) is calculated as 0.3 (g/Ah) times the rated capacity (Ah).

- 2) Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3.
- 3) Section II of PI968 UN Packaging:
  - a) Be marked to indicate that it contains lithium metal cells & batteries, and that special procedures be followed in the event that the package is damaged.
  - b) Each package must be labeled with a lithium battery handling label.
  - c) Be accompanied by a shipping paper explaining that the cells and batteries are excepted from regulations.
  - d) Gross weight no more than 2.5 kgs for Pax / CAO.
  - e) Be capable of withstanding a 1.2 m drop test in any orientation without shifting of the contents that would allow short-circuiting and without release of package contents.

Because the consignor has to take the responsibility, the customer has to confirm the exception conditions when shipping.

## **Section 15 - Regulatory information**

EC Labeling: none  
Risk Phrases: none  
Safety Phrases: none

Labeling is not required because batteries are classified as "articles" under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.