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Safety Data Sheet

1. Identification of Product and Company

1) Product Name

Primary Lithium Manganese Dioxide Cells and Batteries (Li-MnO_2)
Model: CR123A, CR-2, CR17450, CR17505

2) Manufacturer Name: COROS Battery Co., Ltd.

1104, Choongang Royal Office, 13, Seoun-ro, Seocho-gu, Seoul, Korea, 06732

3) Emergency Contact

International: +82-2-588-4008
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2. Composition and Information on Ingredient

Ingredient	CAS No.	EC No.	Wt%
Lithium	7439-93-2	231-102-5	3.8%
Manganese dioxide	1313-13-9	215-202-6	46%
Graphite	7782-42-5	231-955-3	2-3%
Lithium perchlorate	7791-03-9	232-237-2	1-1.5%
1.2-Dimethoxyethane	110-71-4	203-794-9	5%
Propylene carbonate	108-32-7	203-572-1	7%
Iron	7439-89-6	231-096-4	25-30%
Polypropylene	9003-07-0	-	3%
Aluminum	7429-90-5	231-072-3	2%
Poly(tetrafluoroethylene)	9002-84-0	204-126-9	5%
Nickel	7440-02-0	231-853-9	1%

3. Hazard Identification

The Lithium Manganese Dioxide Batteries are dangerous goods.

Danger

It may cause serious skin burns and eye damage and serious eye damage. It is harmful if

swallowed and inhaled. It may damage fertility or the unborn child and suspect of causing cancer and cause damage to organs through prolonged or repeated exposure. Also, it may cause an allergic skin reaction and be harmful to aquatic life with long lasting effects.

Warning

1) Preventive measures

Do not breathe dust, fume, gas, mist, vapours and spray. Do not get in eyes, on skin or on clothing. Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, face protection. If eyes irritation occurs, get medical advice

2) Accident response

Wash contaminated clothing before reuse.
If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.
If swallowed, rinse mouth. Do not induce vomiting.
If on skin (or hair), remove or take off immediately all contaminated clothing. Rinse skin with water or shower.
If in eyes, rinse cautiously with water for several minutes. Remove contact lenses. If present and easy to do, continue rinsing.
If you feel unwell, call a position center or doctor or physician

3) Safety storage: Keep cool and container closed.

4) Waste disposal: Dispose of contents/container to the approval of the waste treatment plant.

4. First Aid Measures

Show this safety data sheet to the doctor in attendance. After receiving the first-aid measure required, consult a physician if necessary.

Eye Contact:

Check for and remove any contact lenses. Get medical attention. Immediately flush eyes with running water for at least 30 minutes, disappear until the chemical residues so far, keeping eyelids open. Provide a readily-accessible eyewash facility and quick-drench safety shower. Do not rubbing eyes with hand.

Skin Contact:

Remove contaminated clothing and shoes immediately. Wash off with soap and
plenty of water. If chemical burns or skin sustained stimulation, consult a physician immediately.

Inhalation:

Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing

is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medial attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Ingestion:

Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

5. Fire Fighting Measures

Extinguishing media: Can use water cooling adjacent batteries so as to control the speed of fire. The preferred medium for small fire is carbon dioxide, dry chemical, or foam fire extinguishing agent. However, when using water to produce hydrogen gas may be mixed with air to form explosive mixture. Cooper powder fire extinguishers, sand can be used as smothering agent.

Special hazards arising from the substance or mixture; in combustion emits toxic fumes, metallic oxides.

Firefighters must wear self-contained breathing apparatus, ware full body fire suit, fire extinguishing in the upwind. As far as possible will be transformed to empty containers from the scene. Keep the fire water spray container cooling, until the end of fire.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Collecting, clearing method and disposal material: Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. Large spill: Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

7. Handling and Storage

Precautions for handling:

Don't reverse the position (+) and negative (-) terminals when used.
Don't connect the battery to an electrical outlet.
Don't use or leave the battery near a heat source as fire or heater. If the battery gives off an odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during use or storage, immediately remove it from the device and stop using.
Don't put the battery excessive vibration, avoid short circuit, however accidental short circuit for a short period of time will not have a serious impact on the battery. Long-term short circuit can make battery loss of energy, generate a lot of heat burn skin, and even cause a fire or explosion. Chaos of the battery in bulk in containers, coins, metal accessories, metal workbench, covered by or metal belt and so on battery device can be used for assembly is the source of cause a short-circuit. Transport or storage battery should have effective measures of prevent short circuit. Don't disassembly or damage to the battery. Away from heat, sparks, open flames and hot surfaces.

Precautions for storage:

Stored in a cool, dry and ventilated place, may cause the battery performance loss under high temperature, leakage, rust. Don't expose the battery under the open flame, stored away, from moisture.

8. Exposure Controls and Personal Protection

Engineering control:

Use adequate ventilation to keep airborne concentrations low. Equipped with safety shower and eyes bath.

Respiratory Protection:
If the batteries leaks must try to keep the air circulation, avoid operating in a narrow place. In the normal conditions of use respiratory protective equipment is not necessary. Respiratory protection may be required under exceptional circumstances when excessive air contamination exists.

Eye Protection:
Not necessary under normal conditions, if the battery damaged or leaking. Wear goggles/safety glasses giving complete eye protection.

Skin and body protection:
Not necessary under normal conditions, if the battery damaged or leaking wear appropriate clothing to minimize skin exposure.

Hand protection:
Not necessary under normal conditions, if the battery damaged or leaking wear appropriate protective gloves

Other protection:
Do not eat, drink or smoke in the workplace. Shower and change clothes after work. Observe the common precautionary measures, contaminated clothes must be changed immediately. Wash hands after work is completed.

9. Physical and Chemical Properties

Appearance	Battery State under normal temp: Solid, cylinder	**pH value**	No data
Odor	None	**Ignition Point**	180℃
Solubility	Insoluable in water	**Flammability:**	Non flammability
Melting Point	No data	**Explosion**	None

10. Stability and Reactivity

Stability: Stable under recommended storage and handling conditions.

Reactivity: Under the condition of burning may produce harmful breakdown products

Incompatible materials: Strong oxidizing agents

Conditions to avoid: In contrast to the nature of the material, overheating, exposed to damp air or water, mechanical vibration and power abuse.

Hazardous polymerization: Will not occur.

Hazardous decomposition products: Hazardous decomposition products formed under the condition of burning . - Metal oxide, H2 or smoke etc.

11. Toxicological Information

Not Applicable

In the event of rupture or leakage, corrosive fumes from the battery can cause

Skin corrosion/irritation: Lithium: Skin corrosion

Eye corrosion/irritation: Lithium: Eye damaged/irritation

Respiratory or skin sensitization: Nickel: Skin sensitization

Aspiration hazard: Manganese dioxide: Acute toxicity, inhalation

12. Ecological Information

Ecotoxicity values: Aluminum: LC50: 1.55mg/J (96h) (fish)

Persistence and degradability: No data.

Bioaccumulative potential: Unknown.

Mobility in soil: No data.

Other adverse effects: Do not allow material to be released to the environment without proper governmental permits.

13. Disposal

Chemical waste generators must determine whether a discarded chemical is classified as a

hazardous waste. Consult state, local or national regulations for proper disposal. The generation of waste should be avoided or minimized wherever possible. Contaminated packaging material should be treated equivalent to residual chemical. Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Refer to Section 7-Handling and Storage and Section 8-Exposure Controls/Personal Protection for additional handling information and protection of employees.

14. Transportation

1) Product Category: Lithium Metal Batteries (with All UN Test Approval)

2) UN ID No. UN3090 or UN3091
UN 3090: Lithium Metal Batteries
UN 3091: Lithium Metal Batteries Contained in Equipment, or
Lithium Metal Batteries Packed with Equipment

- **Lithium metal cells and batteries are considered as Dangerous Goods with UN3090 and UN3091.**
- **Depending on their lithium metal contents, some cells or batteries may be regarded as non-dangerous goods without Class 9 nomination.**

3) Regulation

A. Air Transportation: IATA 64th Edition 2023, Dangerous Goods Regulations

- All cells and batteries shall be tested in accordance with the UN Manual of Tests and Criteria Part III Subsection 38.3 (DGR 3.9.2.6).

Small Size Battery: Lithium Contents (over 8cells) Cells ≤1g / Batteries ≤2g
(CR123A, CR-2, CR17450, CR17505)
➔ Packing Instruction 968 Section IB
- No Passenger Cargo, Cargo Aircraft Only
- Package ≤ Net 2.5kg (or < 35kg in DG label & package)
- Label: Lithium Battery Mark, Lithium battery Class 9 label, Cargo Aircraft Only label
- DG Declaration

B. Sea Transportation: IMDG – Code 2018

Small Size Battery: Lithium Contents Cells ≤1g

(CR123A, CR-2, CR17450, CR17505)
➔ Special Provision 188 (Exception)
- Lithium Metal cells <1g, batteries <2g – Not subject to Class 9 (Non-DG)
- Packing Group I
- Each cell or battery is of the type proved to meet the requirements of each test of the Manual Tests and Criteria Part III, sub section 38.3.Cells and batteries manufactured.

C. Road or Rail Transportation: ADR / RID 2015

Small Size Battery: Lithium Contents Cells ≤1g
(CR123A, CR-2, CR17450, CR17505)
➔ Special Provision 188 (Exception)
- Lithium Metal cells <1g, batteries <2g – Not subject to Class 9 (Non-DG)
- Packing Group I
- Each cell or battery is of the type proved to meet the requirements of each test of the Manual Tests and Criteria Part III, sub section 38.3.Cells and batteries manufactured.

15. Regulatory Information

OSHA regulation: Listed
EINECS regulation: Listed
EU Classification code: No data available

16. Other Information

For further information, please contact to COROS Battery Co., Ltd.