Product Information Sheet

Rockwell Automation has assigned catalog number 1747-BA to a Battery Assembly which is supplied by Sanyo (Sanyo Energy Corp.), Sanyo part number CR14250SE-TC23-1. The Battery Assembly contains FDK lithium battery cell, part number CR14250SE. FDK’s Safety Data Sheet (SDS) for this Lithium Battery Cell follows.

Product Classification
The Rockwell Automation Lithium Battery Assembly, catalog no. 1747-BA, is exempted from dangerous goods regulations as the following requirements are met:

- US DOT 49CFR, 173.185
- Dangerous Goods Regulation, per IATA, Packing Instructions 968, Section II
- Special Provisions ADR 188, IMDG 188

Additional Information
Rockwell Automation is committed to demonstrating the highest standard of global environmental management. We embrace this as a core value and an integral part of all operations and seek continual improvement of our environmental management system and performance.

You can find additional information regarding Rockwell Automation Product Environmental Compliance programs at:

Please send any additional inquiries regarding Product Environmental Compliance to:
ProductStewardship@ra.rockwell.com

Product Safety Data Sheet (SDS) follows
SAFETY DATA SHEET (SDS)

1. Product and Company identification

Product Category : Manganese Dioxide Primary Lithium Battery
Nominal Voltage : 3 V
Product name

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>CAS No.</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive electrode</td>
<td>Manganese Dioxide</td>
<td>1313-13-9</td>
<td>30 ~ 50 wt%</td>
</tr>
<tr>
<td>Negative electrode</td>
<td>Lithium metal</td>
<td>7439-93-2</td>
<td>2 ~ 4 wt%</td>
</tr>
<tr>
<td>Electrolyte</td>
<td>Lithium perchlorate</td>
<td>7791-03-9</td>
<td>0.5 ~ 1.5 wt%</td>
</tr>
<tr>
<td></td>
<td>1,2-Dimethoxyethane</td>
<td>110-71-4</td>
<td>3 ~ 4 wt%</td>
</tr>
<tr>
<td></td>
<td>Mixture of organic solvent</td>
<td>N/A</td>
<td>5 ~ 15 wt%</td>
</tr>
</tbody>
</table>

Note: SDS is not applicable to the product hermetically sealed as dry battery. The battery has no risk to life and health under normal use or transportation because ingredients of battery are not leaked out by virtue of hermetical sealing with metal case.
This SDS notify possible risk of our battery under abnormal use but mainly aim to provide information about ingredients, notification of handling and transportation regulations as a useful reference.

2. Hazards identification

The important hazards and adverse effects of the chemical product

<table>
<thead>
<tr>
<th>Chemical product - specific hazards</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outline of an anticipated emergency</td>
<td>Chemical contents are sealed in metal can. Therefore, risk of exposure never occurs unless battery is mechanically or electrically abused. Risk of explosion by fire is anticipated if batteries are disposed of in fire or heated above 100 degree Celsius. Stacking or jumbling of batteries may cause external short circuits, heat generation, in some case, allowing fire or explosion.</td>
</tr>
</tbody>
</table>

Note) Our battery is not classified in accordance with the GHS classification.

3. Principal Composition/ information on Ingredients

<table>
<thead>
<tr>
<th>Part</th>
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</table>
4. First-aid measures

<table>
<thead>
<tr>
<th>In inhalation</th>
<th>If ingredient leaked out from inside of a battery and if inhaled it, move to a place where fresh air is provided. Refer for medical attention.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>If ingredient leaked out from inside of a battery and stuck on skin, wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin. Refer for medical attention.</td>
</tr>
<tr>
<td>Eyes contact</td>
<td>If ingredient leaked out from inside of a battery and came into eyes, flush the eyes with plenty of water for at least 15 minutes immediately without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.</td>
</tr>
<tr>
<td>Swallowing</td>
<td>In case of swallowing of battery, immediately refer for medical attention.</td>
</tr>
</tbody>
</table>

5. Fire-fighting measures

- **Fire extinguishing agent:**
  - Dry chemical, alcohol-resistant foam, powder, atomized water, carbon dioxide and dry sand are effective.
- **Extinguishing method:**
  - Escape batteries to safe place prevent from ignition by spreading fire.
  - Because packaging material of battery is paper, use water extinguisher, CO2 extinguisher or powder extinguisher as normal extinguisher.
  - Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.

6. Accidental release measures

- Chemical contents are sealed in metal can. But if the battery is mechanically or electrically abused, contents may leak out. In such case, take action as showing below.
- **Personal precautions:** Temporary inhalation of odor and attaching of electrolyte to skin does not cause serious health hazard. Be sure the ventilation and washing out of electrolyte quickly.
- **Environmental precautions:** Clean up it quickly. Specific environmental precaution is not necessary.
- **Method and materials for containment and methods and materials for cleaning up:**
  - Contain and collect spillage and place in container for disposal according to local regulations.

7. Handling and storing

- **Handling**
  - Do not short-circuit, disassemble, deform, heat or incinerate.
  - Do not pile up or mingle batteries with each other.
  - Do not place battery on metal case, metal plate or antistatic material.
  - In case of multi cell application, replace all batteries to new at once when replacing used batteries.

- **Storage**
  - Be sure to store batteries in well-ventilated, dry and cool conditions.
  - Keep away from water, rain, snow, frost or dew condensation.
  - Do not store batteries near source of heat or nozzle of hot air.
  - Do not store batteries in direct sunshine.
  - Take care not to get wet packing by dew condensation when packing is removed from cold to warm and humid condition.
  - Enough number of fire fighting apparatuses should be installed in warehouse.

8. Exposure controls and personal protection

- There is no need of personal protective equipment on regular handling and storage. In the event, however, a large amount of electrolyte should be released by mechanical or electrical abuse, use the protections as shown below.
- **Respiratory protection**: Mask (with a filter preferably)
- **Hand protection**: Synthetic rubber gloves
- **Eye protection**: Goggles or glasses
9. Physical and chemical properties

State : Solid
Shape : Cylindrical

10. Stability and reactivity

Stability: Stable on regular handling
Conditions to avoid: External short circuit of battery, deformation by crush, exposure at high temperature of more than 100 degree C (may cause heat generation and ignition), direct sunlight, high humidity
Materials to avoid: Substances that cause short circuit.

11. Toxicological information

Since chemicals are contained in a sealed can, there are no hazards.
Toxicological information of main components of battery is shown below as reference.
Manganese Dioxide
  Acute toxicity: rabbit : LD50 (blue pipe) =45mg/kg, mouse: LD50(subcutaneous)=422mg/kg
  Local effects: Stimulus to an eye, a nose, a throat, and a skin
  Chronic toxicity or long-term toxicity: Inhalation of powder dust or fume for a long time (at least 3 months) may cause specific central nerve symptom like Parkinson’s disease.
Lithium metal
  Acute toxicity: No information in a metal state
  Local effects: Touching on a skin or an eye causes thermal burn and alkaline chemical burn
Lithium perchlorate
  Acute toxicity: No information at present
  Local effects: Slight stimulus to an eye and skin
1,2-Dimethoxyethane
  Acute toxicity: mouse: LD50(subcutaneous)=2.5mg/kg
  Local effects: Slight stimulus to skin
Mixture of organic solvent
  Acute toxicity: No information at present
  Local effects: Slight stimulus to an eye

12. Ecological information

Persistence and degradability | No information available
Mobility in soil | No information available

13. Disposal considerations

Dispose of batteries in accordance with applicable federal, state and local regulations.
For safety precaution, battery should be insulated in proper manner; covering both terminals by tape, wrapping of battery in insulative bag or packing battery in original package is recommended in order to prevent ignition or explosion due to short-circuit.

14. Transportation Information

Lithium metal cells and batteries are classified as Class 9 Dangerous Goods in the United Nations Recommendation, and given UN numbers as shown in the below table. In case of transport of lithium metal cells and batteries, compliance with all the relevant UN regulations in addition to the requirements of United Nations Recommendation is required.
Our battery (listed on section 1) and its shipping package complies with the requirement of UN Manual of Test and Criteria, Part III, subsection 38.3 as well as the requirements described below, so it is permitted to transport.

< Air Transport >
Our battery is applicable to IATA Dangerous Goods Regulations (IATA-DGR) Packing Instruction 968 section II because it corresponds to the cell (or battery) -lithium content is less than 0.3g. Our battery and its shipping
package is permitted to transport as Exempted Dangerous Goods when it complies with all requirements of the transport conditions for Section II. However, the number of packages to transport per one air way bill will be restricted to one package only, and the transportation will be permitted by cargo aircraft only. In the case of transporting our cells or batteries packed with or contained in equipment, such cells or batteries are permitted for carriage on passenger aircraft.

<Sea Transport>
Our battery is applicable to the International Maritime Dangerous Goods Code (IMDG-Code) Special provision 188 because it corresponds to either case that the cell – lithium content is less than 1g or the battery – lithium content is less than 2g, so it is permitted to transport as Exempted Dangerous Goods when it complies with all requirements of the transport conditions.

<table>
<thead>
<tr>
<th>UN No.</th>
<th>Packing Instruction</th>
<th>Proper Shipping Name/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3090</td>
<td>968</td>
<td>Lithium metal batteries</td>
</tr>
<tr>
<td>3091</td>
<td>969</td>
<td>Lithium metal batteries packed with equipment</td>
</tr>
<tr>
<td>3091</td>
<td>970</td>
<td>Lithium metal batteries contained in equipment</td>
</tr>
</tbody>
</table>

Related regulations: Following regulations shall be cited and considered.

<table>
<thead>
<tr>
<th>Transportations</th>
<th>Related organization / Issue documents</th>
</tr>
</thead>
</table>
| Air transport (by airplane)      | ICAO (International Civil Aviation Organization) / TI (Technical Instruction)  
                                 | IATA (International Air Transport Association) / DGR (Dangerous Goods Regulations) *1               |
| Maritime transport (by ship)     | IMO (International Maritime Organization) / IMDG Code (International Maritime Dangerous Goods Code) *2 |
| Land transport (Intra-European)  | RID (International Carriage of Dangerous Goods by Rail), ADR (International Carriage of Dangerous Goods by Road) |
| USA / UN                         | USDOT (US Department of Transportation) / DOT 49 CFR (US law)                                           

15. Applicable legislation
   EU Directive 2006/66/EC
   CA Lithium Perchlorate Regulation

16. Other information
   Reference
   ● IATA Dangerous Goods Regulations, latest edition *1

Notes on this sheet

This sheet refers to normal use of the product in question. FDK Corp. makes no warranty expressed or implied.