Material Safety Data Sheet for LFC40

Feb. / 2008
GS Yuasa Technology Ltd.
1. PRODUCT IDENTIFICATION

Model : LFC40
Common Name : Lithium-ion Secondary Cell
Rated Capacity : 40Ah
Nominal Voltage : 3.7V
Chemical System : Lithium Cobalt Dioxide / Organic Electrolyte / Carbon
Emergency Contact
Company : GS Yuasa Technology Ltd.
Large-scale Lithium-ion Battery Engineering Dept.
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601-8520 Japan
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Fax Number : +81-75-312-0283 (office)

2. HAZARDOUS INGREDIENTS

Important Note : The cell should not be opened or burned, since the following
ingredients are contained within the cell.
Positive Electrode : Lithium Cobalt Dioxide (active material)
Polyvinylidene Fluoride (binder)
Carbon (conductor)
Negative Electrode : Carbon (active material)
Polyvinylidene Fluoride (binder)
Electrolyte : Organic Solvent (mixture of alkylcarbonate solvents)
Lithium hexafluorophosphate (Li salt)
Others : No heavy metals such as mercury, cadmium, lead and chromium.

3. PHYSICAL PROPERTIES

Lithium-Cobalt Dioxide
Melting Point : Above 1,000 degrees C
Vapor Pressure : Effectively Zero at 20 degrees C
Appearance & Odor : Black Powder, Odorless
**Electrolyte**

**Appearance & Odor**: Colorless Liquid  
**Density**: 1.22 at 20 degrees C  
**Boiling point**: 118 degrees C  
**Melting point**: Below –20 degrees C  
**Vapor Pressure**: 2.7 kPa (20 mmHg) at 20 degrees C  
**Flash point**: 27.9 degrees C

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**4. FIRE and EXPLOSION**

**Lithium Cobalt Dioxide**  
Not Flammable material.

**Electrolyte**  
Flammable. HF and POF₃ gases may be formed in contact with moisture.  
Fire extinguishing materials: Spray water, dry chemical, and carbon dioxide.  
NOTE: Cool the cell completely, or the cell may cause re-ignition.

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**5. FIRST AID PROCEDURE**

**Lithium Cobalt Dioxide**  
Skin contact : Wash off with soap and water.  
Eye contact : Flush off with plenty of water for about 15 minutes.  
Swallowed : Wash the stomach with large quantity of a dilute brine solution.

**Electrolyte**  
Skin contact : Immediately wash thoroughly with soap and water.  
Eye contact : Immediately flush off with plenty of water for at least 15 minutes.  
Inhalation : Remove to fresh air. Get medical attention.  
Swallowed : Wash the stomach with large quantity of a dilute brine solution.  
Get medical attention.

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**6. LEAK and DISPOSAL PROCEDURE**

**Lithium Cobalt Dioxide**  
Wear dust protector to avoid inhalation. Wash the area thoroughly after the material is picked up. Dispose of clean-up water properly.  
Waste Disposal Method : Follow state and local regulations
**Electrolyte**

Remove all sources of ignition. Wear suitable protector such as self-contained breathing apparatus or organic canister mask, safety goggles and gloves. Absorb it using absorbent and inert material, and seal it up in a suitable container. Burn it in chemical incinerator equipment.

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**7. SPECIAL HANDLING INFORMATION**

Storage: Keep in a cool, dry, ventilated area. Protect against physical damage. Keep away from heat, sparks and flames (combustible electrolyte). To prevent short-circuit, do not store the cell together with a metal plate, a metal bar and a material covered with metal.

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**8. TRANSPORT INFORMATION**

The 40Ah Lithium-ion cell is confirmed to meet the criteria for assignment to Class 9 on the basis of tests carried out in accordance with the United Nations Recommendations on the Transportation of Dangerous Goods: Manual of Tests and Criteria (UN Document ST/SG/AC.10/11).

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