

Material Safety Data Sheet

OSHA's Hazard Communication Standard 29 CFR 1910. 1200.

IDENTITY

Lithium Ion Rechargeable Battery

Model: Prismatic Type Cell (TCR053048A, TCR053048B, TCR053048C, TCR053450A, TCR053450B, TCR053450C, TCR053040A, TCR043048A, TCR043048B, TCR043450A, TCR033450A, TCR063450A, TCR103450A)

Section I

Manufacturer's Name: **Ultralife Taiwan Inc.**

Address:	Emergency Telephone Number
No. 2-3 Industry E. Rd. II, Science-Based Industrial Park, Hsinchu 300, Taiwan, R.O.C.	Tel: 886-3-5633999 Fax: 886-3-5637575

Date Prepared: April 7, 2003

Signature of Preparer:

Section II -Hazardous Ingredients / Identity Information

CAS#	OSHA PEL	ACGIH TLV
(1) Lithium Cobaltate (LiCoO ₂)	None Established	12190-79-3
(2) Graphite (C)	None Established	7782-42-5
(3) Electrolyte solution:		
Organic solvents: inflammable		
Ethylene carbonate (EC)	None Established	96-49-1
Ethylmethyl Carbonate (EMC)	None Established	623-53-0
Dimethylene Carbonate (DMC)	None Established	616-38-6
Propylene Carbonate (PC)	None Established	108-32-7
Lithium Salt: (LiPF ₆)	None Established	21324-40-3
(4) Polyvinylidene Difluoride (PVdF)	None Established	24937-79-9
(5) Weight of lithium per cell: 0g		
(6) Weight of Mercury per cell: 0g		

Note: Total lithium component is under 1.0 g in amount for TCR103450A, and other type are under 0.5 g. The lithium exist are below preceding value in any condition.

Section III -Physical / Chemical Characteristics

Specific Gravity: (H₂O=1) LiCoO₂: 4.9~5.3, Graphite: 1.9~2.2

Electrolyte solution-about 1.26

Melting Point (°C) : LiCoO₂ about 1130°C,

Appearance and Odor : LiCoO₂ is a black, odorless powder.



C is a black, odorless powder.
Organic solvent is colorless or light yellow liquid.
Lithium salt is a white, crystalline and odorless powder.

Section IV - Fire and Explosion Hazard Data

Extinguishing Media: CO₂, Sand
Flammable Limit: Not Available
Special Fire Fighting Procedure:
In case of fire for bulk quantities of unpackaged cell, use CO₂ or sand and must not use water.
Unusual Fire and Explosion Hazards:
Incineration, short-circuit or unusual high current charge may cause fire or rupture.

Section V - Reactivity Data

Stability: Stable
Conditions to Avoid: Do not heat, disassemble, overcharge or contact the water.
Hazardous Decomposition or Byproducts: Not Available
Combustion may produce CO gas, hydrocarbon, H₂, CO₂, LiF, HF, H₃PO₄,
Vinylidene fluoride (VF₂), and hexafluoropropylene (HFP).
Hazardous polymerization occur: Conditions to avoid.

Section VI - Health Hazard Data

Routes of Entry:
Inhalation: ? Yes
Skin: ? Yes
Ingestion: ? Yes

Health Hazards (Acute and Chronic):
These chemicals are contained in a sealed can. Risk of exposure only if the Battery is mechanically or electrically abused. Organic solvent has slight toxicity and irritate to skin and eyes.
Lithium salt is irritating to skin, eyes and mucous membranes. It should be avoided contacting of electrolyte with skin and eyes.

Carcinogenicity:
NTP : None
LARC Monograph: None
OSHA regulated : None

General Medical Conditions
Generally aggravated by exposure.

Emergency & First Aid Procedures:
Wash out in abundant water.
For eye contact, flush with copious amount of water 15 minutes over. Do not inhale vapors from a gas release vent. If an irritation persists, get medical help.

Section VII-Precaution for Safe Handling and Use

Steps to Be Taken in Case Material is Release or Spilled:

Wash electrolyte out in abundant water.

Waste Disposal Method:

Dispose in accordance with appropriate regulation.

Open cell should be treated as hazardous wastes.

Precautions to Be Taken in Handling on Treatment and Storage:

Avoid chemical, electrical, thermal or mechanical abuse.

Other Precautions:

Batteries may explode or cause burn, if they are disassembled, crushed, incinerated, or exposed high temperature. Do not short-circuited nor use with reversed polarity.

Section VIII-Control Measure

Respiratory Protection(Special Type):

Not necessary.

Ventilation:

Not necessary.

Protective Gloves:

Not necessary.

Eye Protection:

Not necessary.

Other Protective Clothing or Equipment:

Not necessary.

"NOT RESTRICTED" THIS BATTERY MEETS THE REQUIREMENTS OF THE " IATA" SPECIAL PROVISION OF A45.