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MATERIAL SAFETY DATA SHEET

Notice: Blank space are not permitted. If any item is not applicable, or no information is available the space must be marked to indicate that.

Date of Preparation: 08/012013

Section I — product Identification

Reference No.: MSDS_20130108

Product Name: CR Li-ion cell

For: 2032, 2354, 3032, 2450.. 2330. 2025. 1220

Chemical system: Lithium

Designed for recharge:

Yes No

Ingredient	CAS#	Content (wt%)	RTECS#	OSHA PEL (mg/m ³)	ACGIN TLV (mg/m ³)
Lithium	7439-93-2	1~3	OJ5540000	-	-
Manganese Dioxide	1313-13-9	14.5~38.8	OP0350000	5	5
Graphite	7782-42-5	1.5~4.5	MD9659600	-	2
Teflon	116-14-3	1.9~4.5	KX4025000	15	10
1,2-Dimethoxyethane	110-71-4	3.5~6.5	KI1451000	-	3(ppm)
Propylene Carbonate	108-32-7	1.2~1.9	FF9650000	-	-
Lithium Perchlorate	7791-03-9	0.4~0.9	-	-	-
Stainless Steel	-	45~70	-	-	-

Section II —Hazardous Ingredients

Hazardous Components(Specific Chemical Identity, Common Names) (contents, %)

Manganese Dioxide 30 %

Acetylene Black 5%

Metallic li 3%

Electrolyte 6%

Lead ≤0.001%

Mercury ≤0.0001%

Cadmium ≤0.001%

Section III - Physical / Chemical Characteristics

Boiling Point N.A.	Specific Gravity (H ₂ O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point N.A.
Vapor Density (Air =1) N.A.	Evaporation Rate (Butyl Acetate) N.A.
Solubility in Water	N.A.
Appearance and Odor	Cylindrical Shape, odorless

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) N.A.	Flammable Limits N.A.	LEL N.A.	UEL N.A.
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Extinguishing Media

N.A.

Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may cause explosion

Do not short-circuit battery – may cause burns, burst or leakage.

Section V – Reactivity Data

Stability	Unstable		Conditions to avoid
	Stable	√	Do not short circuit, charge or dispose of in fire

Incompatibility(Materials to avoid)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		conditions to avoid
	Will not occur	√	

Section VI - Health Hazard Data

Rout(s) of Entry	Inhalation	Skin	Ingestion
	N.A.	N.A.	N.A.
Health Hazards (Acute and Chronic)	N.A.		

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

Section VII – First Aid Measures

First Aid procedures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

Section VIII - Fire and Explosion Hazard Data

Flash Point (Method Used)	Ignition Temp. F	Flammable Limits	LEL	UHL
N.A.	N.A.	N.A.	N.A.	N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers

Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.

Section IX – Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

Section X – Handling and Storage

Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

Keep batteries between -30 °C and 35 °C for prolong storage.

Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP

STEP

N.A.

N.A.

Respiratory Protection (Specify Type)

N.A.

Ventilation

local exhausts

Special

N.A.

N.A.

Mechanical(General)

Other

N.A.

N.A.

Protective glove

N.A.

Eye protection

N.A.

Other protective clothing or equipment

N.A.

Work/Hygienic practice

N.A.

Section XII Ecological information

N.A.

Section XIII: Transportation Information

Lithium battery international transportation rules. Based on a United Nations recommendation, the regulation for lithium/lithium ion cells and batteries has been revised in the international Air Transport Association (IATA) dangerous goods regulations (54th Edition 2013). Each cell or battery pack meets the requirements of each test in the UN Manual of Tests and Criteria III, sub section 38.3. The Cells / Batteries are "Not Restricted" Cargo.

- 1) Must comply with packing instruction PI965 section II of IATA DGR 54th Edition 2013.
- 2) UN manual of Tests and Criteria, Part III, sub-section 38.3
- 2) Watt-hour rating not more than 2.7Wh