



**Tenergy Corporation**

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# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT & COMPANY IDENTIFICATION

**PRODUCT NAME:**

Tenergy Lithium Ion rechargeable battery

**MANUFACTURER:**

Name:Tenergy Corporation

Add: 436 Kato Terrace, Fremont, CA 94539

TEL:510.687.0388

FAX:510.687.0328

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS	CONTENT (percent of total weight)	CAS No.	EINECS
Lithium Cobalt Oxide(LiCoO2)	50%	12190-79-3	235-362-0
Carbon(Graphite)	10%	7782-42-5	231-955-3
PP	5%	9003-07-0	NA
PVDF	2%	24937-79-9	NA
PE	5%	9002-88-4	NA
CMC	0.5%	9004-32-4	NA
LiPF6	5%	21324-40-3	244-334-7
EC	5%	96-49- 1	202-510-0
DMC	5%	616-38-6	210-478-4
Ni	2.5%	7440-02-0	231- 111-4
Cu	5%	7440-50-8	231- 159-6
Al	5%	7429-90-5	231-072-3

## 3. HAZARDS/HEALTH IDENTIFICATION

Intact batteries present no specific hazards. If batteries show signs of leaking, AVOID skin or eye contact with the material leaking from the battery. If battery is burning, put out the fire by using right extinguisher.

**Potential Health Hazards:**



**Eye:** no particular hazards for proper use. It will cause severe irritation or chemical burns when batteries are broken.

**Skin:** no particular hazards for proper use. It will cause skin severe irritation by inhalation of EC and DMC or chemical burns when batteries are broken.

**Inhalation:** it will irate breath system by being exposed to fumes when batteries are broken.

**Ingestion:** it is deleterious by swallowing battery. Broken batteries will cause severe chemical burns to mouth, esophagus and gastro enteric system.

**Environment hazards:** It will cause different harms to man and environment.

**Burning and exploding hazards:** when the battery is short-circuited, over charged or over heated, it may cause electrolyte of the battery leaked out or the battery exploding.

#### **4. FIRST-AID MEASURES**

**Skin Contact:** wash the affected area for at least 15-30 minutes with clean water, and seek medical attention immediately.

**Eye contact:** wash the affected area with clean water, and seek medical attention immediately.

**Inhalation:** move to the drafty place, wash oral cavity and nasal cavity, and seek medical attention immediately.

**Ingestion:** if the sufferer is conscious, feed him/her some water and milk, please not urge him/her to vomit, and seek medical attention immediately.

#### **5 FIRE-FIGHTING MEASURES**

**Hazard properties:** the battery may be over-heated by outside and interior short-circuit, and burning batteries may emit toxic fumes.

**Hazardous Combustion products:** metallic oxide, Carbon oxide (CO), Carbon dioxide (CO<sub>2</sub>), etc.

**Extinguishing Media:** species D fire extinguishers of chemical dry powder, yellow sands. Do not use water.

**Firemen safeguard:** firemen should wear fire-fighting suits with a self-contained breathing apparatus

#### **6 ACCIDENTAL RELEASE MEASURE**

**General information:** employ proper protection establishment according to directions of part.8.

**Splash/leakage:** remove the source of fire and heat. Collect the leaked battery and place it into

appropriate vessel for reclaiming and discarding according to correlative native and local laws , regulations and environmental protection requirements. Avoid vibration and physical damage.

Isolate  
irrelative personals.

#### **7 HANDLING & STORAGE**

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**Handling:**

- Do not vibrate the battery excessively.
- Avoid short-circuiting the battery. Though short-circuit for little time will not influence badly the battery, short circuit for long time will lose the battery’s energy and bring plenty of heat which will burn skin and cause fire or explosion indeed.
- The equipments of metal which are used for battery pack such as coin, metal accouterments, metal worktable, metal strip, etc. are source of short-circuit.
- It should be provide with effective measures to prevent short-circuit during transportation and storage.
- Do not disassemble and damage the battery.
- The battery should be transported with 10-50% charged states.
- Do not contact the battery with water.
- Do not store the battery in the place with point-blank sunshine.

**Storage:**

- The battery should be 40-60% charged for long time storage.
- The battery should be stored in the place where is cool, dry and lee.
- High temperature may cause the battery capability loss, leakage and rustiness.
- Do not expose the battery to fire.
- Store the battery away from moisture

**8 EXPOSURE CONTROLS & PERSONAL PROTECTION**

**Engineering control:** No information available.

**Sanitation measure:** no special requirements for handling the battery well packed.

**Respiration protection:** no special requirements for handling the battery well packed.

**Eye protection:** no special requirements for handling the battery well packed.

**body protection:** no special requirements for handling the battery well packed.

**9 PHYSICAL & CHEMICAL PROPERTIES**

Appearance and character: solid
Odor: Odorless
Auto-ignition temperature: 130 °C

**10 STABILITY & REACTIVITY**

**Stability:** stable for normal usage.

**Incompatibility (Materials to avoid):** electric materials, water, seawater, oxidant, acid.

**Conditions to Avoid:** short-circuit, collision, refit, high temperature (over 100C), point-blank sunshine and high humidity environment.

**Decomposition products:** toxic gas brought when burning.

**Hazardous polymerization:** not occur.



**11 TOXICOLOGICAL INFORMATION**

CAS NO.	RETCS
12190-79-3	None list
7782-42-5	MD9659600
9003-07-0	UD1842000
24937-79-9	None listed
9002-88-4	TQ3325000;KX3270000
9004-32-4	FJ5950000
21342-40-3	None listed
96-49- 1	FF9550000
616-38-6	FG0450000
7440-02-0	QR5950000;QR6126100;QR6555000;QR7120000
7440-50-8	GL5325000;GL7440000;GL7590000
7429-90-5	BD0330000;BD1020000

**Acute toxicity:**

Ingredients: hydroxide methyl cellulose sodium

- LC50: >5800 mg/m<sup>3</sup>/4h ( small rat,inhalation)
- LD50: >27 g/kg (small rat,to eat)

Ingredients: LiPF<sub>6</sub>

- LD50: >1702 mg/kg (big rat, by mouth)

Ingredients: Ethylene carbonate

- LD50: >10000 mg/kg (big rat, by mouth)
- LD50: >3000 mg/kg (rabbit,by skin)

Ingredients: Dimethyl carbonate

- LD50: >6000 mg/kg (small rat, by mouth)
- LD50: >13000 mg/kg (big rat, by mouth)

**Irritation:** NA

**Carcinogenicity:**

Ingredients: nickel

- LARC-2B: potential carcinogen
- ACGIH A5:non-human carcinogen

Other substances: not be listed under ACGIH , IARC , NTP

**12 ECOLOGICAL INFORMATION**

**Ecological toxicity:** the chemicals of the battery will cause harm to the environments if it is discarded to the surroundings.

**Biodegradability:** No information available.

**Non- biodegradability:** No information available.



### **13 DISPOSAL CONSIDERATIONS**

Product disposal recommendation: Observe local, state and federal laws and regulations.  
Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

### **14 TRANSPORT INFORMATION**

The Rechargeable Li-ion Battery had passed the UN 38.3 test and is classified as non-dangerous goods and also complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Rechargeable Li-ion Battery.

The Rechargeable Li-ion Battery is transported according to the PACKING INSTRUCTION 965 Section IB of IATA DGR 65th edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES, UN No.: UN3480).

However, the Rechargeable Li-ion Battery may also be transported according to the PACKING INSTRUCTION 966 Section II of IATA DGR 65th edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, UN No.: UN3481) or PACKING INSTRUCTION 967 Section II of IATA DGR 65th edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, UN No.: UN3481).

More information concerning shipping, testing, marking and packaging can be obtained from label master at <http://www.labelmaster.com/>.

Each package must be labeled with a Lithium Battery handling label.

Li-ion batteries can be treated as “Non-dangerous goods” under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions (2023-2024 edition).
- The International Air transport Association (IATA) Dangerous Goods Regulations (65th edition).
- The International Maritime Dangerous Goods (IMDG) Code (Amdt. 41- 22).
- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

### **15 REGULATORY INFORMATION**

The regulations following are specifically applied to the safe usage, production, storage, transport and load and unload for dangerous chemicals.

- —The Regulations of Safe Management Regarding Dangerous Chemicals meet the requirement of IATA Dangerous Goods Regulations 65<sup>th</sup> Edition.
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- — The Rules of implementation of Safe Statute Regarding Dangerous Chemicals (No.667 ,1992)
- The Regulations of Safe Use of Dangerous Chemicals in Workplace(No.423,1992)

### **16 OTHER INFORMATION**

Creation Department: Technical Department

Creation Date: Jan.04, 2024

Revision explanation:

The information of this SDS which represents the best information currently available to us, are just to describe the requirements regarding health, safety and environment of the product and ion Battery had passed the UN 38.3 test we make no warranty of merchant ability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.