



## **SAFETY DATA SHEET**

Product Name: Lithium-ion  
Rechargeable Battery

436 Kato Terrace, Fremont, CA 94539 U.S.A.

Tel: 510.687.0388 Fax: 510.687.0328

[www.Tenergy.com](http://www.Tenergy.com)



# Lithium-ion Battery

## Section 1 – Chemical Product and Company Identification

### Chemical product identification

Product Name:	Lithium-ion Battery
Product Code:	None
Restrictions on use:	N/A

### Company identification

Company:	Tenergy Corporation
Address:	436 Kato Terrace, Fremont, CA, United State
Post code:	94539
E-mail:	sales@Tenergy.com
Telephone :	510-687-0388
Fax:	510-687-0328

## Section 2 – Hazards Identification

**Emergency overview:** Not considered dangerous as manufactured. If battery is damaged, exposure to product components may cause eye, skin, and respiratory tract irritation. Combustion products from a fire involving batteries may be harmful.

**Classification according to GHS:** Not a dangerous substance according to GHS.

### Potential Health Effects

Eyes and skin:	None anticipated under normal product use and handling conditions. If battery is damaged, exposure may cause severe irritation or burns.
Injection:	Not considered a likely route of exposure under normal product use and handling conditions. Ingestion of material from a damaged battery may cause serious burns to mouth, esophagus, and gastrointestinal tract.
Inhalation:	None anticipated under normal product use and handling conditions. If battery is damaged, exposure to vapors or mist may cause respiratory irritation.

### HMIS Ratings:

Health:	0
Fire:	0
HMIS Reactivity:	0

**Hazard Scale: 0=minimal 1=slight 2=moderate 3=serious 4=severe \*=chronic hazard**

Emergency overview: In case of accident or if you feel unwell, seek medical advice immediately. See Section 4 for more information.



### Section 3 – Composition, Information on Ingredients

**Chemical characterization: Mixture**

**Emergency overview: N/A**

Chemicals	Composition (% by weight)	CAS NUMBER
Lithium Metal Oxide (Co, Mn, Ni)	30.60%	12190-79-3
Graphite powder	15.06%	7782-42-5
Rubber	10.36%	69028-37-1
Carbon black	0.79%	1333-86-4
Styrene-butadiene rubber (SBR)	0.71%	61789-96-6
Polypropylene	1.74%	9003-07-0
Polyethylene	1.27%	9002-88-4
Lithium hexafluorophosphate	1.27%	21324-40-3
Ethylene carbonate (EC)	6.34%	96-49-1
Diethyl carbonate(DEC)	4.76%	105-58-8
Propylene carbonate(PC)	1.11%	108-32-7
Polycaprolactam (NYLON 6)	1.11%	25038-54-4
Copper	9.65%	7440-50-8
Aluminium	4.12%	7429-90-5
Nickel	1.27%	7440-02-0
Polymide Film	0.43%	58698-66-1

### Section 4 – First Aid Measures

**First Aid: Eyes**

Flush eyes with lukewarm water for at least 30 minutes while holding the eyelids open. Seek immediate medical care.

**First Aid: Skin**

Remove contaminated clothing, shoes and leather goods. Flush with water for at least 30 minutes. Seek medical attention if symptoms persist.

**First Aid: Ingestion**

Never give anything by mouth if victim is unconscious. Rinse mouth thoroughly with water. Do not induce vomiting. Seek immediate medical attention.

**First Aid: Inhalation**

Remove person to fresh air away from source of contamination.

### Section 5 – Fire Fighting Measures

**General Fire Hazards**

See section 9 for flammability properties. Battery cells may rupture when exposed to excessive heat.

**Hazardous Combustion Products**

May release toxic fumes if burned or exposed to fire



**Suitable extinguishing agent:**

Use extinguishing agent suitable for local conditions and the surrounding environment. Such as dry powder, CO<sub>2</sub>. For damaged or ruptured cells, use Class D extinguisher or other appropriate agent. Class C fire extinguishers should be used to extinguish electrical fires. Do not use water to extinguish electrical or ruptured cell related fires.

**Specific Hazards arising from the chemical:**

Special hazards arising from the substance or mixture.

Battery may burst and release hazardous decomposition products when exposed to a fire situation. When damaged or abused(e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

**Fire-fighting measures and protection for fire-fighters:**

Protective equipment: wear self-contained respirator. Wear fully protective impervious suit.

## Section 6 – Accidental Release Measures

**Containment Procedures:**

Stop the flow of material, if this is without risk

**Clean-up Procedures:**

Absorb spill with inert material. Shovel material into appropriate container for disposal. Clean spill area with detergent and water; collect wash water for proper disposal.

**Evacuation Procedures**

Isolate area. Keep unnecessary personnel away.

**Special Procedures**

Avoid skin contact with the spilled material.

**Emergency procedures:**

Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust.

Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water.

**Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

**Methods and materials for containment and cleaning up:**

All waste must refer to the United Nations, the national and local regulations for disposal.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## Section 7 – Handling and Storage

**Handling Procedures**

Avoid damaging or rupturing battery.

**Storage Procedures**

Store in a dry location at room temperature. Avoid extreme heat or fire. Keep out of reach of children.

## Section 8 – Exposure Controls, Personal Protection

**A: Component Exposure Limits**

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.



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### Engineering Controls

Not necessary under normal product use conditions.

### PERSONAL PROTECTIVE EQUIPMENT

#### Personal Protective Equipment: Eyes/Face

Not necessary under normal product use conditions. Wear safety glasses if handling a damaged battery.

#### Personal Protective Equipment: Skin

Not necessary under normal product use conditions. Wear neoprene or natural rubber gloves when handling a damaged battery.

#### Personal Protective Equipment: Respiratory

Not necessary under normal product use conditions.

#### Personal Protective Equipment: General

Eyewash fountains and emergency showers are required.

## Section 9 – Physical and Chemical Properties

### Information on basic physical and chemical properties

#### General information

Appearance: Various shaped battery

Odor: None

Physical State: Solid

pH: NA

Vapor Pressure: NA

Vapor Density: NA

Boiling Point: NA

Melting Point: NA

Solubility (H<sub>2</sub>O): Insoluble

Auto Ignition: NA

Specific Gravity: NA

Evaporation Rate: NA

VOC: NA

Octanol/H<sub>2</sub>O Coeff.: NA

Flash Point: NA

Flash Point Method: NA

Upper Flammability Limit (UFL): NA

Lower Flammability Limit (LFL): NA

Burning Rate: NA

## Section 10 – Stability and Reactivity

**Chemical Stability:** This is a stable material.

#### Chemical Stability: Conditions to Avoid

Avoid exposure to elevated temperatures and fire.

#### Incompatibility

Not Available.

#### Hazardous Decomposition

May release toxic fumes if burned or exposed to fire.

#### Possibility of Hazardous Reactions

Not Available.

## Section 11 – Toxicological Information

Organic Electrolyte

- Acute toxicity: LD<sub>50</sub>, oral - Rat 2,000mg/kg or more



- Irritating nature: Irritative to skin and eye

## Section 12 – Ecological Information

### **Persistence/degradability:**

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

## Section 13 – Disposal Considerations

Recommended methods for safe and environmentally preferred disposal:

### **Product (waste from residues)**

Specified collection or disposal of lithium ion battery is required by the law like as "battery control law" in several nations. Collection or recycle of the battery is mainly imposed on battery's manufacturer or importer in the nations recycle is required.

### **Contaminated packaging**

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

## Section 14 – Transport Information

Lithium-ion batteries comply with all applicable shipping regulations as prescribed by industry and legal standards which include UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods Regulations and US DOT requirements. Cells and Batteries have been tested to section 38.3 of the UN Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria. All of the batteries listed in this Safety Data Sheet are less than 100 Whrs; therefore, air shipment of up to 2 batteries without equipment in a package can be shipped as an "excepted" quantity and does not require being shipped as a fully regulated Class 9 Hazardous Material. If more than 2 batteries without equipment are being shipped in one package, using air transportation, then the package is considered a fully regulated shipment and must meet the more stringent documentation, marking, and labeling requirements.

- For lithium ion batteries, UN ID number is 3480. For lithium ion batteries contained in equipment or lithium ion batteries packed with equipment, UN ID number is 3481.
- The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the IATA 57<sup>th</sup> Edition (effective January 01, 2016), Dangerous goods regulation and all applicable carrier and government regulations.

### **Regulation depends on region and transportation mode**

- Worldwide, air transportation:

IATA-DGR [As non-DANGEROUS GOODS: "packing instruction 965 section II" /

Almost as above however displayed as DANGEROUS GOODS: "packing instruction 965 section IB"] (When batteries are packaged with equipments or contained in equipments, refer packing instruction 966 or 967 instead of 965.)



- Worldwide, sea transportation:  
IMO-IMDG Code [special provision 188]
- Europe, road transportation:  
ADR [special provision 188]

## Section 15 – Regulatory Information

### US Federal Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

## Section 16 – Additional Information

### Revision Information:

Date of this revision: 01/01/2016

### Training advice:

Provide adequate information, instruction and training for operators.

### Abbreviations and acronyms:

GHS:	Globally Harmonized System of Classification Labeling of Chemicals.
CAS:	Chemical Abstracts Service registration number.
NIOSH:	US National Institute for Occupational Safety and Health
OSHA:	US Occupational Safety and Health
LD50:	Lethal Dose, 50 percent kill
ITAT	International Air Transport Association
IMDG:	International Maritime Dangerous Goods
TSCA:	Toxic Substances Control Act,
IECSC:	Inventory of existing chemical substances in China

### Disclaimer to reader:

The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage