

Material Safety Data Sheet

**For Lithium-ion Rechargeable Cell
Model: L1450 Series**

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UNION LITHPLUS ENERGY (LIAONING) CORP.

Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product: Rechargeable Battery

Trade name: Lithium-ion rechargeable cell

Electrochemical system:

Negative Electrode: Carbon (C)

Positive Electrode: Cobalt lithium manganese nickel oxide

Electrolyte: LiPF₆

Type/model: L1450 Series 300-900mAh 3.6V

Section 2 - Composition/Information on Ingredient

Chemical Composition	Molecule Formula	CAS No.	Weight (%)
Lithium nickel-cobalt-manganese oxide	LiNi _x Co _y Mn _z O ₂	182442-95-1	20-32
Aluminum	Al	7429-90-5	2-6
PVDF	(CH ₂ -CF ₂) _n	24937-79-9	0.2-0.6
Graphite	C	7782-42-5	12-18
Copper	Cu	7440-50-8	5-9
SBR	(C ₈ H ₈ ·C ₄ H ₆) _x	9003-55-8	0.2-0.5
PE	(C ₂ H ₄) _n	9002-88-4	0-1
PP	(C ₃ H ₆) _n	9003-07-0	0-1
Lithium Hexafluorophosphate	LiPF ₆	21324-40-3	1-3
EC	C ₃ H ₄ O ₃	96-49-1	2-3.5
Steel	Fe	7439-89-6	25-35
Nickel	Ni	7440-02-0	

Section 3 - Hazards Identification

Health Hazards (Acute and Chronic)

Emergency Overview

May explode in a fire, which could release hydrogen fluoride gas and smoke. Use extinguishing media suitable for materials burning in fire

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Sign/Symptoms of Exposure

A shorted lithium battery can cause thermal and chemical burns upon contact with the skin.

Section 4 - First Aid Measures

Eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

Inhalation

Remove from exposure and move to fresh air immediately. Use oxygen if available.

Ingestion

Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

Section5- Fire Fighting Measures

Flash Point: N/A. **Auto-Ignition Temperature:** N/A. **Extinguishing Media**

Use extinguishing media suitable for the materials that are burning.

Special Fire-Fighting Procedures

Self-contained breathing apparatus.

Unusual Fire and Explosion Hazards

Cell may vent when subjected to excessive heat-exposing battery contents.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

Section 6 - Accidental Release Measures

Steps to be Taken in case Material is Released or Spilled

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the batteries to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

Waste Disposal Method

It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental protection agency and/or federal EPA.

Section 7 - Handling and Storage

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Other Precautions

Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Section 8 - Exposure Controls, Personal Protection

Respiratory Protection

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

Ventilation

Not necessary under conditions of normal use.

Protective Gloves

Not necessary under conditions of normal use.

Other Protective Clothing or Equipment

Not necessary under conditions of normal use. Personal Protection is recommended for venting batteries: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

Section 9 - Physical and Chemical Properties

Nominal Voltage: 3.6V. **Rated Capacity:** 300-900 mAh.

Appearance Characters: cylindrical, with odorless solid battery.

Chemical Uses: Various.

Section 10 - Stability and Reactivity

Stability

Stable.

Conditions to Avoid

Heating, mechanical abuse and electrical abuse.

Hazardous Decomposition Products

N/A.

Hazardous Polymerization

N/A. If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

Section 11 - Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibroid lung injury and membrane irritation.

Section 12 - Ecological Information

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not creation, or unconsumed lithium remaining in the spent battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

Section 14 -Transport Information

Lithium-ion batteries containing no more than 20Wh/cell and 100 Wh /battery pack 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.

Lithium-ion batteries have been tested under provisions of the UN Manual of Tests and Criteria, the battery is passed the UN 38.3 test, Part III, sub-section 38.3(withstanding a 1.2m drop test) and are classified as non-dangerous goods.

Regarding air transport, the following regulations are cited and considered:

- I) The International Civil Aviation Organization (ICAO) Technical Instructions.
- II) The International Air Transport Association (IATA) Dangerous Goods Regulations (64th Edition (Year 2023), PI965 -PI967) .
- III) The International Maritime Dangerous Goods (IMDG) Code (Amendment 40-20) Special Union Lithplus Energy (Liaoning) CORP.

provision 188.

IV) The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA (Part 49 CFR Sections 100-185) .

V) The Office of Hazardous Materials Safety within the US Department of Transportation's(DOT) Research and Special Programs Administration (RSPA), and

VI) The UN Recommendations on the Transport of Dangerous Goods Model Regulations and the Manual of Tests and Criteria.

PSN: LITHIUM ION BATTERIES UN 3480 CLASS 9

Transport Fashion: By air, by sea, by railway, by road.

Section 15 - Regulatory Information

Law Information

《Dangerous Goods Regulation》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods》

《Occupational Safety and Health Act》 (OSHA)

《Toxic Substances Control Act》 (TSCA)

《Consumer Product Safety Act》 (CPSA)

《Federal Environmental Pollution Control Act》 (FEPCA)

《The Oil Pollution Act》 (OPA)

《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》 (SARA)

《Resource Conservation and Recovery Act》 (RCRA)

《Safety Drinking Water Act》 (CWA)

《California Proposition65》

《Code of Federal Regulations》 (CFR)

In accordance with all Federal, State and Local laws.

Section 16 - Additional Information

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein. This information relates to the specific materials designated and may not be valid for such material used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use. LITHPLUS does not accept liability for any loss or damage that may occur, whether direct, indirect, incidental or consequential, from the use of this information.