

## MATERIAL SAFETY DATA SHEET

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MSDS REF. NO.: Soluna 10K Pack LV

### LITHIUM-ION RECHARGEABLE BATTERY

#### SECTION 1 MANUFACTURER'S INFORMATION

IDENTITY	Product Category	:	Rechargeable Li-ion Battery Pack
	Model Name	:	Soluna 10K Pack LV
	Brand	:	SOLUNA
	Nominal Capacity	:	200Ah
	Nominal Voltage	:	51.2 V
	Watt-hour	:	10.24kWh
	Chemical System	:	Lithium iron phosphate
	Designed for Recharge	:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### SECTION 2 MATERIAL AND INGREDIENTS INFORMATION

Battery :

Important Note :	The battery should not be opened or burned since the following ingredients contained within the product that could be harmful under some circumstance if exposed or misuse. The battery contains neither metallic lithium nor lithium alloy.
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Material name	CAS No.	Concentration range (wt %)
LiFePO4	15365-14-7	49
LiPF6	21324-40-3	3
C	7782-42-5	24
Al	7429-90-5	6
Cu	7440-50-8	13
PE	9002-88-4	5

## SECTION 3 HAZARDS IDENTIFICATION

Health Hazards(Acute and Chronic)	These chemicals are contained in a sealed Aluminum-plastic film. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte with skin and eyes should be avoided.
Sign/Symptoms of Exposure	A shorted battery can cause thermal and chemical burns upon contact with the skin. Maybe a reproductive hazard.
Primary Route(s) of Exposure	Battery can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly. Keep in original package until ready to use. Do not carry batteries loose in your pocket or purse. Keep batteries away from children. If swallowed, consult a physician at once. Under certain misuse conditions and by abusively opening the battery, exposed lithium can react with water or moisture in the air causing potential thermal burns or fire.

## SECTION 4 FIRST-AID MEASURES

General Advice	The chemicals in this product are contained in a sealed package. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
Eye contact	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin contact	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.
Note to Physician	Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow up x rays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances.

## SECTION 5 FIRE-FIGHTING MEASURE

Fire and Explosion Hazards	Batteries may burst and release hazardous decomposition products when exposed to a fire situation.
Extinguishing Media	CO2

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 battery 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

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	The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity
Storage	Store batteries in a dry place at normal room temperature.

## SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits	No exposure to the battery components should occur during normal use
Ventilation	Not necessary under conditions of normal use

Respiratory Protection	In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.
Skin Protection	None required for normal use. Use butyl rubber gloves when handling leaking batteries.
Eye Protection	None required for normal use. Wear safety goggles when handling leaking batteries.
Protective Gloves	In the event of leakage wear gloves, Others not need.
Other Protective Clothing or Equipment	Not necessary under conditions of normal use. Personal Protection is recommended for venting battery: Respiratory protection, Protective gloves, protective clothing and safety glass with side shields.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor	Prismatic cell, no odor.
Water Solubility	Insoluble
Flash Point	52°F ( 25°C) ((DMC)

## SECTION 10 STABILITY AND REACTIVITY

Stability	Stable
Conditions to Avoid	Heating, mechanical abuse and electrical abuse.
Hazardous Decomposition Products	Not Available
Hazardous Polymerization	Not Available

## SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects	The chemicals in this product are contained in a sealed package. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
Eye Contact	Contact with battery contents may cause irritation.
Skin Contact	Contact with battery contents may cause irritation.
Inhalation	Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation
Ingestion	Seek immediate medical advice. Batteries lodged in the esophagus should be

	removed immediately since leakage, caustic burns and perforation package occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas, may occur following exposure to a leaking battery
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## 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

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not reaction or unconsumed lithium remaining in the spent battery. The battery 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. lithium ion cell batteries are labeled in compliance with the EU Battery Directive 2006/66/EC.

## SECTION 14 Transport information

Persons who prepare or offer lithium batteries for transport are required by regulation to be trained and certified.

UN Number: UN3480

Packaging Group: II

EmSNo: F-A, S-I

Marine pollutant: No

Proper Shipping name: Lithium ion batteries (Including lithium ion polymer batteries)

Hazard Classification: The goods shall be complied with the requirements of Section IA of Packing Instruction 965 of 64th DGR Manual of IATA(2023 Edition), Packing Instruction P903 of IMDG CODE (Amdt. 40-20)(2020 Edition) , including the passing of the UN38.3 test.

Lithium ion cells and batteries must be offered for transport at a state of charge (SOC) not exceeding 30% of their rated design capacity from 1 April 2016. Shipping packages containing rechargeable lithium batteries must be labeled, regardless of size or number of batteries, with a lithium battery handling label.

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>. Separate battery when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

## SECTION 15 REGULATORY 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 Proposition 65》

《Code of Federal Regulations》 (CFR)

In accordance with all Federal , State and local laws.

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