

SDS Report

Sample Description Rechargeable Lithium Ion battery
Company Shanghai Torch Power Systems Technology Co.,Ltd

上海韬驰电源系统科技有限公司
Shanghai Torch Power Systems Technology Co.,Ltd



Safety Data Sheet

AC-BAT-120 14.4V 72Wh 5000mAh Lithium-ion Rechargeable Batteries

1 Identification (of the product and the supplier)

1.1 Product :Lithium-ion Rechargeable battery

Models: AC-BAT-120 14.4V 72Wh 5000mAh Lithium Ion Battery

Cell Electrochemical system:

Electrodes	Negative electrode Graphite	Positive electrode Lithium cobaltite(LiCoO ₂)
Electrolyte	Solution of lithium hexafluorophosphate(LiPF ₆) in a mixture of organic solvents*	
Nominal voltage	3.7 Volts	

* Ethylene Carbonate(EC)+DiMethyl Carbonate(DMC)+DiEthyl Carbonate(DEC).

1.2 Supplier:

Name: Shanghai Torch Power Systems Technology Co.,Ltd.

Address: Room 1308,building 1,No.1458 Shuichan Road,Baoshan District,Shanghai
China

Phone : +86(0)21-33794125

2 Composition (typical weight percentages of basic material)

Chemical Name	Percent (by weight %)	CAS No.	EC No.
Lithium cobaltite	37	12190-79-3	235-362-0
Graphite	25	7782-42-5	231-955-3
Copper	10	7440-50-8	231-159-6
Nickel	6.3	7440-02-0	231-111-4
Ethylene carbonate	5.7	96-49-1	202-510-0
Diethyl carbonate	5.7	105-58-8	203-311-1
Dimethyl carbonate	5.7	616-38-6	210-478-4
Aluminium	4	7429-90-5	231-072-3
Lithium hexafluorophosphate	0.6	21324-40-3	244-334-7

3 Hazards Identification

3.1 Physical:

The Lithium-Ion rechargeable batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the solid electrode materials and liquid electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of the safety valve and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

The batteries are fitted with a safety valve for protection in case of excessive internal pressure and/or temperature.

3.2 Chemical:

Substance	Melting point	Boiling point	Classification			
			Exposure limit	Indication of danger	Special risk(1)	Safety advices(2)
LiCoO ₂	>1000°C	N/A	0.1mg/m ³ OSHA		R22 R43	S2 S22 S24 S26 S36 S37 S43 S45
Organic solvents (DC-DMC -DEC)	EC:38°C DMC:4°C DEC:-43°C	EC:243°C DMC:90°C DEC:127°C	None established OSHA	Flammable	R22 R21 R41 R42/43	S2 S24 S26 S36 S37 S45
LiPF ₆	N/A (decomposes at 160°C)	N/A	None established OSHA	Irritant Corrosive	R14 R21 R22 R41 R43	S2 S8 S22 S24 S26 S36 S37 S45

(1)- Nature of special risks:

R14 Reacts with water.

R21 Harmful in contact with skin.

R22 Harmful if swallowed.

R41 Risk of serious damage to the eye.

R42/43 May cause sensitization by inhalation and skin contact.

R43 May cause sensitization by skin contact.

(2)- Safety advices:

S2 Keep out of reach from children.

S8 Keep away from moisture.

S22 Do not breathe dust.

S24 Avoid contact with skin.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.

S36 Wear suitable protective clothing.

S37 Wear suitable gloves.

S45 In case of incident, seek medical attention.

GHS ICON:



GHS02: Flammable



GHS07: Harmful



GHS08: Health Hazard

4 First Aid Measures

In case of battery rupture or explosion, evacuate personnel from contaminated area and provide maximum ventilation to clear out fumes/gases.

In all case, seek medical attention.

Eye contact: Flush with plenty of water (eyelids held open) for at least 15 minutes.

Skin contact: Remove all contaminated clothing and flush affected areas with plenty of water and soap for at least 15 minutes.

Do not apply greases or ointments.

Ingestion: Dilute by giving plenty of water and get immediate medical attention. Assure that the victim does not aspirate vomited material by use of positional drainage.

Assure that mucus does not obstruct the airway.

Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air and ventilate the contaminated area.

Give oxygen or artificial respiration if needed.

5 Fire-Fighting Measures

Fire and explosion hazard:

The batteries can leak and/or spout vaporized or decomposed and combustible electrolyte fumes in case of exposure above 70°C resulting from inappropriate use or from the environment.

Possible formation of hydrogen fluoride (HF) and phosphorous oxides during fire.

LiPF₆ salt contained in the electrolyte releases hydrogen fluoride (HF) in contact with water.

Extinguishing media: *Suitable:* CO₂
Dry chemical or Foam extinguishers
Not to be used: Type D extinguishers

Special exposure hazards:

Following cell overheating due to external source or due to improper use, electrolyte leakage or battery container rupture may occur and release inner component/material in the environment.

Eye contact: The electrolyte solution contained in the battery is irritant to ocular tissues.

Skin contact: The electrolyte solution contained in the battery causes skin irritant.

Ingestion: The ingestion of electrolyte solution causes tissue damage to throat and gastro/respiratory tract.

Inhalation: Contents of a leaking or ruptured battery can cause respiratory tract, mucus, membrane irritation and edema.

Special protective equipment:

Use self-contained breathing apparatus to avoid breathing irritant fumes.

Wear protective clothing and equipment to prevent body contact with electrolyte solution.

6 Accidental Release Measures

The material contained within the batteries would only be expelled under abusive conditions. Using shovel or broom, cover battery or spilled substances with dry sand or vermiculite, place in approved container (after cooling if necessary) and dispose in accordance with local regulations.

7 Handling And Storage

The batteries should not be opened, destroyed nor incinerate since they may leak or rupture and release in the environment the ingredients they contain.

Handling: Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in non-conductive (i.e. plastic) trays.

Storage: Store in a cool (preferably below 30°C) and ventilated area away from moisture, sources of heat, open flames, food and drink. Keep adequate clearance between walls and batteries. Temperature above 70°C may result in battery leakage and rupture. Since short circuit can cause burn, leakage and rupture hazard, keep batteries in original packaging until use and do not jumble them.

Other: Follow manufacturer recommendations regarding maximum recommended currents and operating temperature range. Applying pressure on deforming the battery may lead to disassembly followed by eye, skin and throat irritation.

8 Exposure Controls / Personal Protection

Respiratory protection: Not necessary under normal use. In case of battery rupture, use self-contained full-face respiratory equipment.

Hand protection: Not necessary under normal use. Use viton rubber gloves if handling a leaking or ruptured battery.

Eye protection: Not necessary under normal use. Wear safety goggles or glasses with side shields if handling a leaking or ruptured battery.

Skin protection: Not necessary under normal use. Use rubber apron and protective working in case of handling of a ruptured battery.

9 Physical and Chemical Properties

Physical properties

Appearance: Black plastics shell

Form: Cube

Odour: Odourless

Chemical properties

Molecular Formula: Mixture

Molecular Weight: N/A

PH:	N/A
Flash Point:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Water Solubility:	N/A
Electrical properties	
Rated capacity:	5.0Ah
Energy :	72Wh
Normal Voltage:	14.4V

10 Stability And Reactivity

- Conditions to avoid:** Heat above 70°C or incinerate.
Deform, mutilate, crush, pierce, disassemble.
Short circuit.
Prolonged exposure to humid conditions.
- Materials to avoid:** N/A
- Hazardous decomposition products:** Corrosive/Irritant Hydrogen fluoride (HF) is produced in case of reaction of *lithium hexafluorophosphate (LiPF₆)* with water.
Combustible vapors and formation of Hydrogen fluoride (HF) and phosphorous oxides during fire.

11 Toxological Information

The Lithium-ion rechargeable batteries do not contain toxic materials.

12 Ecological Information

When properly used or disposed, the Lithium-ion rechargeable batteries do not present environmental hazard.

13 Disposal Considerations

Dispose in accordance with applicable regulations which vary from country to country.
Lithium-Ion batteries should have their terminals insulated and be preferably wrapped in plastic bags prior to disposal.

- 13.1 Incineration:** Incineration should never be performed by battery user but eventually by trained professionals in authorized facilities with proper gas and fumes treatment.

- 13.2 Recycling:** Send to authorized recycling facilities, eventually through licensed waste carrier.

14 Transport Information

In the case of transportation, confirm no leakage and no overspill from a container.
Take in a cargo of them without falling, dropping and breakage. Prevent collapse of

cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 7-HANDLING AND STORAGE also.

Codes and classifications according to:

International regulations for transport Air IATA-DGR : Section II OF PI 966/967 of IATA-DGR.

International regulations for transport Sea IMDG CODE: special provision 188

National regulations for transport land GB12268-2005

The UN classification number : Class 9 3480

However, since it corresponds to PI 966/967 of

IATA-DGR, special provision 188 of IMDG CODE, GB12268-2005 of land regulation, this battery cell can be conveyed normally.

Lithium battery dose not contains any recalled/defective battery and meeting

Packing Instruction Section II OF PI 966/967 of IATA-DGR 65th Edition 2024.

Production of SDS proving UN manual of Tests and Criteria, part III, sub-section 38.3 is met on SDS.

15 Regulatory Information

《Dangerous Goods Regulation》(DGR)

《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)

《Resource Conservation and Recovery Act》(RCRA)

《Safety Drinking Water Act》(CWA)

《Code of Federal Regulations》(CFR)

In accordance with all Federal, State and Local laws

16 Other Information / Disclaimer

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