SAFETY DATA SHEET (SDSs)

Section 1, Product Information and Company Identification

Manufacturer Information：

NEXcell Battery Co., Ltd.
3F, NO.24, PROSPERITY RD. II, SCIENCE PARK HSINCHU, TAIWAN 300
TEL： 886-3-5783800 FAX： 886-3-5786645 www.nexcell-battery.com
Date: 2024/01/03 Version: J

Product Information

Product Name：	Rechargeable Lithium Ion Battery Pack
Model NO：	NLI-553450-3S1P (4-NL021L)
Cell Type：	UF553450Z
Rating :	11.1V, 1150mAh,12.765wh

Emergency Phone Number: +886 4 2437 5278

Recommended use:

- Charge with specific charger according to product specification. Charge with CC/CV model.
- When not using cell for long terms, remove it from the equipment and store in a place with low humidity and low temperature.
- Batteries have life cycles. If cell powers equipment much shorter time than usual, please replace the cell with a new one.
- Battery would be over-discharged by its self-discharge characteristics in case the battery is not used for long time. In order to prevent over-discharging, the battery shall be charged periodically to maintain between 11.1V and 11.7V.

Restriction on use:

- Reverse charging is prohibited, for it will deteriorate the cell performance and lead to safety issues such as heat and leakage.
- Stop using the cell if abnormal heat, odor, discoloration, deformation or abnormal condition is detected during use, charge, or storage.
- Do not put battery into a microwave oven, dryer, or high-pressure container.
- Prohibition of use battery close to fire or in where temperature above 60℃. Also do not charge / discharge in such conditions.

Section 2, Composition / Information on Ingredients

English Name： Rechargeable Lithium Ion Battery Pack

Synonymous Name：

Hazardous Ingredients：

Portion	Chemical Name	CAS No.	Concentration/ Concentration range
Positive electrode	Lithium transition metal oxidate (Li[M]m[O]n *1)	12190-79-3 12031-65-1 12057-17-9 182442-95-1 207803-51-8	20~60%
Positive electrode’s base	Aluminum	7429-90-5	1~10%

Negative electrode	Carbon	7782-42-5 7440-44-0	10~30%
Negative electrode's base	Copper	7440-50-8	1~15%
Electrolyte	Organic electrolyte principally involves ester carbonate	623-53-0 105-58-8 96-49-1 21324-40-3	5~25%
Outer case	Aluminum, iron, aluminum laminated plastic	7429-90-5 7439-89-6	1~30%
Lithium equivalent content	1.035g for battery pack		

**1 The letter M means transition metal and candidates of M are Co, Mn, Ni and Al. One compound includes one or more of these metals and one product includes one or more of the compounds.*
The letter m and n means the number of atoms.

Section 3, Hazards Identification

- Health Hazard Effect：
  The battery pack interior airtight chemical substance, if the artificial/machinery/electron improper use destroys, causes the chemical substance outside or the gas leaks causes the skin/eye damage and explodes.
- Environment Influence：
  Since a battery cell remains in the environment, do not throw out it into the environment.
- Physics/Chemical damage：-----
- Special damage：-----
- Cardinal Condition：
  Disgusting, vomit, the stupor, the skin fever scalds, the position feeling barrier.
- Article damage classification：-----

Section 4, First Aid Measures

Under normal conditions of use, the battery is hermetically sealed.

1. Ingestion：Swallowing a battery can be harmful Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.

2. Inhalation：Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs. Provide fresh air and seek medical attention.

3. Skin Contact：Contents of an open battery can cause skin irritation and/or chemical burns. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

4. Eye Contact：Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

Section 5, Fire Fighting Measures

- If fire or explosion occurs when battery are on charge， should shut off power to charger. In case of fire where lithium ion battery is present, flood the area with water. If any battery is burning, water may not extinguish them, but will cool the adjacent battery and control the spread of fire. CO_2， dry chemical, and foam extinguishers are preferred for small fires.

- extinguishers：
  Water/CO_2/dry chemical/foam

Section 6, Accidental Release Measures

- **personal protection**：
  1. Respiratory Protection： Not necessary under normal conditions.

  2. Eye Protection： Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

  3. Gloves： Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery

- **Ventilation Requirements**： Not necessary under normal conditions
- Should depend on environmental protection stipulation recycle mode processing.

Section 7, Handling and Storage

- Handling：
  Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery.
  Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled battery in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of battery in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery.

- Storage：

  Store in cool place (temperature: -20 ~ 35 degree C, humidity: 45 ~ 85%).

Section 8, Exposure controls / Personal protection

- ENGINEERING CONTROLS：-----

Control parameter		
Common chemical name/ General name	TLV-TWA	BEI
Lithium Cobaltic ($LiCoO_2$)	0.02mg/ m^3 (as cobalt)	-----
Aluminum	10mg/ m^3 (metal coarse particulate) 5mg/ m^3 (inflammable powder) 5mg/ m^3 (weld fume)	-----
Carbon (Natural graphite) (Artificial graphite)	2mg/ m^3 (inhalant coarse particulate)	-----
Copper	0.2mg/ m^3 (fume) 1.0mg/ m^3 (a coarse particulate, mist)	-----
Organic electrolyte	-----	-----

- Personal Protection
  Respiratory protection: Respirator with air cylinder, dust mask
  Hand protection: Protective gloves
  Eye protection: Goggle or protective glasses designed to protect against liquid splashes
  Skin and body protection: Working clothes with long sleeve and long trousers

Section 9, Physical and Chemical Properties

Physical state	(Solid)	(Solubility in water)	/
Cell Color	(Metallic color)	(Explosion limit)	/
Odor	(Odorless)	(Auto flammability)	/
Flashpoint	/	(Melting Point)	$LiCoO_2$ about 1130℃
Boiling Point	/	(Freezing Point)	/

Section 10, Stability and Reactivity

- Stability：
  Stable under normal use
- Reactivity：
  Avoid contact with water and acids.

Section 11, Toxicological Information

Under normal conditions of use, the battery is toxicological sealed. So void to open and damage battery directly.

Section 12, Ecological Information

If the battery is scrapped, it should be selected and disposed by professional company

Section 13, Disposal Considerations

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

Section 14, Transportation Information

UN regulation
UN shipping name: Lithium ion batteries
UN number : UN3480 (batteries only)
UN3481 (Lithium ion batteries contained in equipment or
Lithium ion batteries packed with equipment)
Class: 9
Packing group: Packing Instruction 965 Section Ⅱ, Section IB, Section IA
Packing Instruction 966 Section Ⅰ, Section Ⅱ
Packing Instruction 967 Section Ⅰ, Section Ⅱ

The rechargeable lithium ion battery pack meet all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3. All package must be labeled with a lithium battery label.
We hereby confirm the state of charge (SoC) of Lithium ion batteries do not exceed 30% of the rated capacity according to IATA 65th edition DGR.
Recommendations on the Transport of Dangerous Goods, provided that packaging is strong and prevent the products from short-circuit. With regard to the air/ocean transportation, the following regulations are cited and considered:
I) The International Civil Aviation Organization (ICAO) Technical Instructions (2019-2020 Edition).
II) 2024 International Air Transport Association (IATA) Dangerous Goods Regulations ((65th edition)
III) IMO(International Maritime Organization) IMDG special provision 188, 230
IV) Europe, Ground transportation ADR special provision 188.
V) The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA (DOT 49 CFR §173.102).

Section 15, Regulatory Information

(ACGIH)
(OSHA)
European Union (UN)
(ISO)

Section 16, Other Information

- Reference : SANYO LI-ION CELL BATTERY MSDS
- Made by：NEXcell Battery Co., Ltd.
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  TEL： 886-3-5783800 FAX： 886-3-5786645 www.nexcell-battery.com

Note: The reference data provide from supplier.