

# PRODUCT SAFETY DATA SHEET

## Lithium ion rechargeable battery pack 10S4P UR18650AA / 10S4P ICR18650-26H / 10S4P NCR18650PF / 10S5P UR18650AA / 10S5P NCR18650PF

According Regulation (EC) No 1907/2006 (REACH) a safety data sheet must be provided for substances and preparations only. Batteries are not affected by the requirements of this Regulation.

### 1. Identification of the substance and of the manufacturer

Identification: Product category Lithium ion battery

Model name: JCEB360-8.8, JCEB360-10.4, JCEB360-11.6, JCEB360-11, JCEB360-14.5

Battery Pack: 10S4P UR18650AA/ 10S4P ICR18650-26H /10S4P NCR18650PF / 10S5P UR18650AA / 10S5P NCR18650PF

Nominal voltage: 36 V

Nominal capacity: 8.8 Ah /10.4Ah / 11.6Ah /11.0Ah/14.5Ah

Nominal energy: 317Wh/417Wh/396Wh/522Wh

Chemical system: Lithium NMC / Graphite

Rechargeable: Yes

Manufacturer Name: Suzhou Phylion Battery Co., Ltd.

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### 2. Hazards identification

For the battery cell, chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage.

However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery cell case will be breached at the extreme, hazardous materials may be released.

Moreover, if heated strongly by the surrounding fire, acrid gas may be emitted.

- Most important hazard and effects

Human health effects:

Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.

Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and stimulation on the skin.

Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.

Environmental effects: Since a battery cell remains in the environment, do not throw out it into the environment.

- Specific hazards:

If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride.

Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Portion	Material name	Concentration range (wt %)
Positive electrode	Lithium transition metal oxidate (Li[M]m[O]n *1)	20~60
Positive electrode's base	Aluminum	1~10
Negative electrode	Carbon	10~30
Negative electrode's base	Copper	1~15
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25
Outer case	Aluminum, iron, aluminum laminated plastic	1~30

\*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.

### 4. First aid measures

#### Spilled internal cell materials

- Inhalation: Make the victim blow his/her nose, gargle. Seek medical attention if necessary.
- Skin contact: Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.
- Eye contact: Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

#### A battery cell and spilled internal cell materials

- Ingestion: Make the victim vomit. When it is impossible or the feeling is not well after vomiting, seek medical attention.

### 5. Fire fighting measures

In case of fire: Use dry chemical extinguishers.

Caution: Before starting to extinguish the fire, be sure, that you are at windward of fire. So you cannot inhale toxic vapors.

- Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Specific hazards: Corrosive gas may be emitted during fire.
- Specific methods of fire-fighting: When the battery burns with other combustibles simultaneously, take fire-extinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.
- Special protective equipment for firefighters:
  - Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask
  - Hand protection: Protective gloves
  - Eye protection: Goggle or protective glasses designed to protect against liquid splashes
  - Skin and body protection: Protective cloth

### 6. Accidental release measures

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

- Precautions for human body:
  - Remove spilled materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as

much as possible. Moreover, avoid touching with as much as possible.

- Environmental precautions: Do not throw out into the environment.
- Method of cleaning up: The spilled solids are put into a container. The leaked place is wiped off with dry cloth.
- Prevention of secondary hazards: Avoid re-scattering. Do not bring the collected materials close to fire.

## 7. Handling and storage

Handling: Do not open the battery. Do not crush, disassemble, drop or solder.

Charging: Charge within limits of -10 to 55 degree C ,Charge only with specified charger designed for this battery.

Discharging: Discharge within limits of 55 degree C

Caution: Wrong handling can cause fire or explosion.

Storage: Temperature: -10 to 35 degree C                      Humidity range: 0 % to 85 %

Well ventilated area.    Short circuit can ransom burn.    Do not store with metal objects.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (WHEN THE ELECTROLYTE LEAKS)

- Control parameters

ACGIH has not been mentioned control parameter of electrolyte.

- Personal protective equipment

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

## 9. Physical and chemical properties

Appearance: 40 or 50 cells in silver/grey/ black/white plastic housing.

Weight: 10S4P-Around 2.6KG, 10S5P-Around 3.2KG

Chemical properties: see Point 3

## 10. Stability and reactivity

During a long storage the capacity will be reduced and the lifespan of the battery will be shorter.

The plastic housing can be damaged by leaking electrolyte.

## 11. Toxicological information

Upon normal use there will be no leaking and, hence, there will be no contact with toxically ingredients of the battery.

## 12. Ecological information

Upon normal use there won't be any environmental pollution.

If the battery is unusable, you must recycle it. See Point 13.

## 13. Disposal considerations

The battery is hazardous waste.

It is not allowed to dispose it with common waste.

If the battery is unusable, dispose it according to the applicable recycling regulations.

## 14. Transportation information

- a) UN number: UN 3480
- b) UN proper shipping name  
ADR/RID/IMDG-Code: LITHIUM-ION-BATTERIES  
ICAO-TI/IATA-DGR: LITHIUM ION BATTERIES
- c) Transport hazard class: 9 (Miscellaneous)
- d) Packing group: II (Substances presenting medium danger)

### **Note:**

*Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form shall be assigned to UN numbers 3480 as appropriate. They may be carried under these entries if they meet the following provisions:*

- a) each cell or battery is of the type proved to meet the requirements of each test of the Manual of Test and Criteria, Part III, sub-section 38.3;*
- b) each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under normal conditions of carriage;*
- c) each cell and battery is equipped with an effective means of preventing external short circuits;*
- d) each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.)*
- e) cells and batteries shall be manufactured under a quality management program that includes:*
  - 1. a description of the organizational structure and responsibilities of personnel with regard to design and product quality;*
  - 2. the relevant inspection and test, quality control, quality assurance, and process operation instruction that will be used;*
  - 3. process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;*
  - 4. quality records, such as inspection reports, test data, calibration data and certificates. Test data shall be kept and made available to the competent authority upon request;*
  - 5. management reviews to ensure the effective operation of the quality management program;*
  - 6. a process for control of documents and their revision;*
  - 7. a means of control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;*
  - 8. training programs and qualification procedures for relevant personnel;*
  - 9. procedures to ensure that there is no damage to the final product.*

## 15. Other information

- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.