



**SPORTON LAB.**

**BATTERY MSDS CONFIRMATION LETTER**

**Applicant:** CHIEN TI ENTERPRISE CO.,LTD.  
**Equipment Name:** Rechargeable Lithium ion Battery  
**Type designation:** NCR18650PF-6P7S  
**Capacity** 25.2 V/16500 mAh/415.8Wh(min.)  
 25.2 V/17400 mAh/438.48Wh(typ)

**Confirmation itme:** Material Safety Data Sheet

Section	Items	Note(s): check
2.	Hazards indentification	V
3.	Composition/Information on ingredient	V
4.	First aid measures	V
5.	Fire fighting measures	V
6.	Accidental release meaures	V
7.	Handling and storage	V
8.	Exposure controls, personal protection	V
9.	Physical and chemical properties	V
10.	Stability and reactivity	V
11.	Toxicological information	V
12.	Ecological information	V
13.	Disposal considerations	V
14.	Transport information	V
15.	Regulatory information	V
<b>Comment:</b>		

**Issued Date:** 2018-12-04

**Director :**





中国认可  
国际互认  
检验  
INSPECTION  
CNAS IB0551



Report No.: GNGF20181019MSDS01

# MATERIAL SAFETY DATA SHEET

Product Name: Rechargeable Lithium ion Battery

Type/ Model: NCR18650PF-6P7S 25.2V  
16500mAh / 415.8Wh(min)  
17400mAh / 438.48Wh(typ)

Revision Date: Nov.19, 2018

Compiler:

*Huang Yining*

Reviewer:

*Tang Mingcao*

Approver:

*Jin Hongbin*



广州邦禾检测技术有限公司

**Guangzhou MCM Certification and Testing Co., Ltd.**



# Material Safety Data Sheet

## SECTION 1 - CHEMICAL AND COMPANY IDENTIFICATION

<b>Name of Sample:</b> Rechargeable Lithium ion Battery	<b>Type:</b> NCR18650PF-6P7S 25.2V 16500mAh / 415.8Wh(min) 17400mAh / 438.48Wh(typ)
<b>Company:</b> CHIEN TI ENTERPRISE CO.,LTD.	<b>Address:</b> No.833, Changxiang Rd., Jiudou village, Xinwu Dist., Taoyuan City 327, Taiwan
<b>Zip code:</b> —	<b>Fax:</b> 02-8227-2626
<b>E-mail:</b> peggytseng@sporton.com.tw	<b>Emergency Telephone:</b> 02-8227-2020#150

## SECTION 2 – HAZARDS IDENTIFICATION

### Hazards Identification:

The battery has passed the test items of UN Model Regulations, Manual of Test and Criteria Section UN38.3; Report No.: GNGF20181019U01; The sealed Battery is not hazardous in normal use.

### Emergency Overview:

Caution: Avoid contact and inhalation the electrolyte contained inside the battery.

## SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENT

Ingredient	Molecular formula	CAS No.	Weigh
Lithium Cobalt Dioxide	LiCoO <sub>2</sub>	12190-79-3	20-60%
Lithium Manganate	LiMn <sub>2</sub> O <sub>4</sub>	12057-17-9	
Lithium Nickel Cobalt Manganese Oxide	LiNi <sub>x</sub> Co <sub>y</sub> Mn <sub>z</sub> O <sub>2</sub>	182442-95-1	
Aluminium	Al	7429-90-5	1-10%
Graphite	C <sub>24</sub> X <sub>12</sub>	7782-42-5	10-30%
Graphite	C	7440-44-0	
Copper	Cu	7440-50-8	1-5%
Ethyl Methyl Carbonate	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>	623-53-0	5-25%
Diethyl Carbonate	C <sub>5</sub> H <sub>10</sub> O <sub>3</sub>	105-58-8	
Ethylene Carbonate	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	96-49-1	
Iron	Fe	7439-89-6	1-30%

**SECTION 4 – FIRST AID MEASURES****Eye Exposure:**

In case of contact with eyes, flush with copious of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Skin Exposure:**

If the internal battery materials of an opened battery cell come into contact with skin, immediately flush with plenty of water.

**Inhalation Exposure:**

If inhaled the internals of battery vomiting. Seeking Immediate medical attention.

**Ingestion Exposure:**

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**SECTION 5 – FIRE FIGHTING MEASURES****Danger characteristic:**

Exposure to excessive heat can cause venting of the liquid electrolyte. Battery may burst and release hazardous decomposition products when exposed to a fire situation.

**Hazardous combustion products:**

Corrosive gas may be emitted during fire.

**Fire-Fighting method& media**

The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire in the upwind direction. Remove the container to the open space as soon as possible .Spray water on the containers in the fireplace to keep them cool until finish extinguishment Media: plenty of water, dry chemical powder or carbon dioxide .

**SECTION 6 – ACCIDENTAL RELEASE MEASURES****Emergency treatment:**

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. 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.

**SECTION 7 – HANDLING AND STORAGE****Handling:**

1. Do not allow battery terminates to contact each other, or contact with other metals.
2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.
3. Do not expose the battery to excessive physical shock or vibration.
- 4 Do not immerse, throw, and wet a battery in water.
- 5 Short-circuiting should be avoided. Short circuit will reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short- circuited battery can cause skin burn.
6. 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.

7. Place the cell beyond the child packing and container.
8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.
9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.
10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.

**Storage:**

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.
2. Keep the sample in the cool, dry and well-ventilated place(temperature:-20~30degree C humidity:45~85%). Do not exposure to direct sunlight for long periods.Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid.
3. charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.
4. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

**Engineering Control:**

Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.

**Respiratory Protection:**

Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

**Eyes Protection:**

Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.

**Skin and Body Protection:**

Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.

**Hands Protection:**

Not necessary under conditions of normal use. Wear chemical resistant rubber .

**Other Protections:**

No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:**

Black

**Physical state:**

Solid

**Form:**

Prismatic

**Odor:**

Odorless

**Solubility:**

Insoluble in water.

### SECTION 10 – STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under normal temperature and pressure.
<b>Distribution of Ban:</b>	Strong oxidizer, strong acid and corrosives
<b>Conditions to Avoid:</b>	Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge.
<b>Hazardous Polymerization:</b>	Will not occur.
<b>Hazardous Decomposition Products:</b>	Metal oxides, CO, CO <sub>2</sub>

### SECTION 11 – TOXICOLOGICAL INFORMATION

<b>Acute Toxicity:</b>	N/A
<b>Sub-acute and Chronic Toxicity:</b>	N/A
<b>Irritation Data:</b>	The internal battery materials may cause irritation to eyes and skin.
<b>Sensitization:</b>	The liquid in the battery may cause sensitization to some person.
<b>Mutagenicity:</b>	No information is available.
<b>Carcinogenicity:</b>	Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).
<b>Others:</b>	Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.

### SECTION 12 – ECOLOGICAL INFORMATION

<b>Eco-toxicity:</b>	No data available.
<b>Biodegradable:</b>	No data available.
<b>Mobility in soil:</b>	No data available.
<b>Bioconcentration or biological accumulation:</b>	No data available.
<b>Other harmful effects:</b>	Don't abandon the battery into environment, may cause water or soil pollution.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**Appropriate Method of Substance:**

The battery should be completely discharged prior to disposal in order to prevent short circuit. The battery contains recyclable materials. It is suggested recycle. Refer to National or Local regulations before handling. Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

**SECTION 14 – TRANSPORT INFORMATION**

<b>Note:</b>	Lithium batteries is classified to Lithium ion batteries (including lithium ion polymer batteries) and Lithium metal batteries (including lithium alloy batteries).  Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "PI965-970 section II of IATA-DGR" or "special provision 188 of IMO-IMDG Code".
<b>IATA:</b>	<b>Proper Shipping Name:</b> Lithium ion batteries
	<b>UN Number:</b> UN 3480
	<b>Hazard Class:</b> 9
	<b>Packaging requirement:</b> According to IATA DGR 59 <sup>th</sup> Edition (Effective 1 January-31December 2018), PACKING INSTRUCTION 965 of section IA for transportation.
<b>IMO:</b>	<b>Proper Shipping Name:</b> Lithium ion batteries
	<b>UN Number:</b> UN 3480
	<b>Hazard Class:</b> 9
	<b>Packing Group:</b> II  The goods are restricted to IMO IMDG Code (Amend 38-2016) according to special provision903.

**SECTION 15 – REGULATORY INFORMATION**

《Dangerous Goods Regulation》 (DGR)  
 《Recommendations on the Transport of Dangerous Goods Model Regulations》  
 《International Maritime Dangerous Goods》 (IMDG)  
 《Occupational Safety and Health Act》 (OSHA)  
 《Toxic Substances Control Act》 (TSCA)  
 《Code of Federal Regulations》 (CFR)  
 《Technical Instructions for the Safe Transport of Dangerous Goods》  
 《California Proposition 65》  
 《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》 (SARA)  
 In accordance with all Federal, State and local laws.

**SECTION 16 – ADDITIONAL INFORMATION****Accordinging standard:**

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections  
ISO 11014:2009(E) Safety data sheet for chemical products – Content and order of sections

**Date:**

2018-11-19

**Department:**

Guangzhou MCM Certification and Testing Co., Ltd.  
1 F No.13,Zhong San Section, ShiGuang Road, Panyu District, Guangzhou City, Guangdong Province, China.  
Tel.:0086-20-34777662 0086-20-34777663 Fax.: 0086-20-34777665-609  
WEB: [Http://www.mcmtek.com](http://www.mcmtek.com) Email: [mark.miao@mcmtek.com](mailto:mark.miao@mcmtek.com)

**Other Information:**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty express or implied, With respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damage of any third party or for lost profits or any special, indirect, consequential or exemplary damages arising from using the above information.



### Sample Reference Photo

**Model: NCR18650PF-6P7S 25.2V**  
**16500mAh/415.8Wh(min) 17400mAh/438.48Wh(typ)**

