

# Celxpert Safety Data Sheet

## [29 CFR 1910.1200]

### Safety Data Sheet

May be used to comply with OSHA's Hazard communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

### US Department of Labor

Occupational Safety and Health Administration  
(Non-Mandatory Form) Form Approved  
OMB No.1218-0072

## SECTION 1: IDENTIFICATION

**PRODUCT NAME :** Lithium Ion Rechargeable Battery Pack

**CUSTOMER :** Lenovo

**CUSTOMER P/N :** 5B10H42764

**CPT P/N :** 921300055

**MODEL NAME :** L14C3A01

**DESCRIPTION :** Nano15 3S1P SDI 2200mAh , 10.8V /24Wh

**MANUFACTURER :** Celxpert(KunShan)Energy Co.,Ltd

**ADDRESS :** No1111.Hanpu Road .Hi-Tech industrial Park . kunshan. China

**TEILEPHONE :** +86-512-57775999#2532

**FAX :** +86-512-5777-3839

## SECTION 2: HAZARDS IDENTIFICATION

### PROTENTIAL HEALTH EFFECTS

#### PRIMARY ROUTES OF ENTRY

Skin contact, Skin absorption, Eye contact, Inhalation, and Ingestion : NO

#### SYMPTOMS OF EXPOSURE

Skin contact

No effect under routine handling and use.

Skin absorption

No effect under routine handling and use.

Eye contact

No effect under routine handling and use.

Inhalation

No effect under routine handling and use.

### SECTION 3: Composition/information on ingredients

#### Battery Cell

HAZARDOUS INGREDIENTS	%	CAS NUMBER
Aluminum Foil	2-10	7429-90-5
Metal Oxide (proprietary)	20-50	
Polyvinylidene Fluoride (PVDF)	<5	24937-79-9
Copper Foil	2-10	7440-50-8
Carbon (proprietary)	10-30	7440-44-0
Electrolyte (proprietary)	10-20	
Stainless steel, Nickel and inert materials Remainder	N/A	Remainder

#### Circuit Module

HAZARDOUS INGREDIENTS	%	CAS NUMBER
Lead	0.001	7439-92-1
Mercury	0	7439-97-6
Chromium	0	7440-47-3
Cadmium	0	7440-43-9
Plastic case and Si2O	0	N/A

#### Plastic Parts and Paints

HAZARDOUS INGREDIENTS	%	CAS NUMBER
Lead	<0.1	7439-92-1
Nickle	<0.01	7440-02-0
CFCs	0	75-69-4
Polychlorinated Biphenyls	0	1336-36-3

### SECTION 4: FIRST AID MEASURES

INHALATION, EYE CONTACT, and SKIN CONTACT : Not a health hazard.

INGESTION

If swallowed, obtain medical attention immediately.

If exposure to internal materials within cell(pack) due to damaged outer casing, the

Following actions are recommended.

#### INHALATION

Leave area immediately and seek medical attention.

#### EYE CONTACT

Rinse eyes with water for 15 minutes and seek medical attention.

#### SKIN CONTACT

Wash area thoroughly with soap and water and seek medical attention.

#### INGESTION

Drink milk/water and induce vomiting; seek medical attention.

## SECTION 5: FIRE FIGHTING MEASURES

### 5.1 GENERAL HAZARD

Cell is not flammable but internal organic material will burn if the cell is incinerated.

Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.

### 5.2 EXTINGUISHING MEDIA

Use extinguishing media suitable for the materials that are burning.

### 5.3 SPECIAL FIREFIGHTING INSTRUCTIONS

If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) can explode/vent.

### 5.4 FIREFIGHTING EQUIPMENT

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 ON LAND

Place material into suitable containers and call local fire/police department.

## 6.2 IN WATER

If possible, remove from water and call local fire/police department.

## SECTION 7: HANDLING AND STORAGE

### 7.1 HANDLING

No special protective clothing required for handling individual cells.

### 7.2 STORAGE

Store in a cool, dry place.

## SECTION 8: EXPOSURE CONTROLS//PERSONAL PROTECTION

### 8.1 ENGINEERING CONTROLS

Keep away from heat and open flame. Store in a cool dry place.

### 8.2 PERSONAL PROTECTION

Respirator: Not required during normal operations. SCBA required in the event of a fire.

Eye/face protection: Not required beyond safety practices of employer.

Gloves: Not required for handling of cells.

Foot protection: Steel toed shoes recommended for large container handling.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

State	Solid
Odor	N/A
PH	N/A
Vapor pressure	N/A
Vapor density	N/A
Boiling point	N/A
Solubility in water	Insoluble
Specific gravity	N/A
Density	N/A

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 REACTIVITY

None

### 10.2 INCOMPATIBILITIES

None during normal operation. Avoid exposure to heat, open flame, and corrosives.

### 10.3 HAZARDOUS DECOMPOSITION PRODUCTS

None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

### 10.4 CONDITIONS TO AVOID

Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

## SECTION 11: TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

Sensitization: NO Teratogenicity: NO Reproductive toxicity:NO Acute toxicity: NO

This product does not contain any kinds of the following substances and halogen-type flame retardants including Chlorine and Bromide type harmful flame retardants which are listed in Appendix of TCO documents and relevant international ECO requirements:

Polybromated Biphenyls (PBB)  
Polybromated Diphenylethers (PBDE)  
Polychlorinated Biphenyls (PCBs)  
Polychlorinated Terphenyls(PCTs)  
Polychlorinated Paphthalene(PCN)  
Chlorinated Paraffins(C10-C13)  
Chlorofluorocarbons(CFCs)  
Polyvinyl Chloride(PVC)  
Carbon Tetrachloride

None of the following substances will be exposed, leaked, or emitted during transportation,

storage or any operation and any temperature condition:

Chlorinated Fluorohydrocarbon (FCKW)

Acrylonitrile

Styrol

Phenol

Benzol

Mercury of greater than 0.0001 wt% for alkaline battery

Mercury of greater than 0.0005 wt% for other battery

Lithium content of greater than 0.5g/battery cell

Cadmium, lead, and other harmful heavy metal

And will comply with the regulation of 49 CFR (DOT regulation), International Air Transport Association (IATA), and Deuche Forschungsgemeinschaft (DFG) regarding concentrations of emitted substances.

This product does not contain mercury and cadmium.

Mercury content: N/A

Cadmium content: N/A

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

## SECTION 12: ECOLOGICAL INFORMATION

Some materials within the cell are bio-accumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

CALIFORNIA REGULATED DEBRIS

RCRA Waste Code: Non regulated

Dispose of according to all federal, state, and local regulations.

## SECTION 14: TRANSPORT INFORMATION

- The International Civil Aviation Organization (ICAO) Technical Instructions (2015-2016 Edition).
- The International Air Transport Association (IATA) Dangerous Goods Regulations (56th Edition, 2015). Packing instruction 965 Section IB or II for Lithium Ion battery.
- The International Maritime Dangerous Goods (IMDG) Code (2014 Edition) with special provision 188 & 230.
- US Hazardous Materials Regulations 49 CFR(Code of Federal Regulations)Sections 173-185 Lithium batteries and cells.
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries, 5th revised edition(UN3480).

## SECTION 15: REGULATORY INFORMATION

OSHA hazard communication standard (29 CFR 1910.1200)

## SECTION 16: OTHER INFORMATION

Package if damaged: do not load or transport.  
 Celxpert contact window: J.D. Chen  
 For more information,call 1-800-424-9300

## SECTION 17: UN MANUAL OF TEST CRITERIA

All battery pack model pass UN383 test and drop test.

Item	Test Item	Test specification
T1	Altitude Simulation (UN38.3-1)	1-1. All samples weight are measured. The voltage and internal resistance are measured and recorded. 1-2. All samples are put into the oven and evacuated to less than 11.6Kpa(8.7mmHg) for 6.5Hours at 20±5°C. Vacuum is released. All samples weight are measured. The charged packs voltage are measured and recorded.
Item	Test Item	Test specification

T2	Thermal test (UN38.3-2)	<p>2-1. Packs are stored for 6 hours at <math>75\pm 2^{\circ}\text{C}</math>, followed by storage for 6 hours at <math>-40\pm 2^{\circ}\text{C}</math>. The maximum time interval between test temperature extremes is 30 minutes.</p> <p>2-2. Repeat 2-1 for 10 times. Then store the packs at ambient for 24 hours. All packs weight are measured. The charged battery voltage are measured and recorded.</p>
T3	Vibration test (UN38.3-3)	<p>3-1. Packs are firmly secured to the platform of the vibration machine without distorting the packs in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of 3 mutually perpendicular to the terminal face.</p> <p>3-2. The logarithmic frequency sweep is as follows:          7-18 Hz → 1gn          18-50 Hz → 0.8mm amplitude          50-200 Hz → 8gn</p> <p>3-3. All packs weight are measured. The charged packs voltage are measured and recorded.</p>
T4	Shock test (UN38.3-4)	<p>4-1. Packs shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces.</p> <p>4-2. Packs shall be subjected to a half-sine shock of peak acceleration 150gn and pulse duration of 6 milliseconds. Each pack shall be subjected to 3 shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the pack for a total of 18 shocks.</p>
T5	Short Circuit Test (UN38.3-5,	<p>5-1. Packs are placed in to a <math>55\pm 2^{\circ}\text{C}</math> oven, and exterior packs temperature are monitored</p> <p>5-2. When packs exterior reach <math>55\pm 2^{\circ}\text{C}</math>, they are shorted by connecting terminals with a copper wire of resistance less than 100 mOhm.</p> <p>5-4. The short was continued for more than 1hour or the cell temperature return to <math>55^{\circ}\text{C}</math>. The packs are observed for a further 6 hours.</p>
T6	Impact test (UN38.3-6)	<p>6-1. The test sample is to be placed on a flat surface. A 15.8mm diameter bar is to be placed across the center of the sample. A 9.1 Kg mass is to be dropped from a height of <math>61\pm 2.5\text{cm}</math> onto the sample.</p> <p>6-2. A cylindrical or prismatic cell is to be impacted with its longitudinal axis parallel to the flat surface.</p>
T7	Overcharge test (UN38.3-7)	<p>7-1. The charge current shall be twice the SPEC's recommended maximum continuous charge current.</p> <p>7-2. The minimum voltage of the test shall be as follows:          (a) When the SPEC's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.          (b) When the SPEC's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.</p> <p>7-3. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours.</p>



T8	Forced discharge test-cell only (UN38.3-8)	8-1. Ten rechargeable cells, at first cycle in fully discharged states 8-2. Ten rechargeable cells after fifty cycles ending in fully discharged states
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Package Drop Test

Test specification: Height :120cm.

Hazardous

Non-hazardous

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN

Product name: Lithium-Ion Rechargeable Battery Pack

Revision date: 5/09/2013

Printing date: 5/09/2013

## 1. Identification

### (a) Product identifier

Product name: Lithium-Ion Rechargeable Battery Pack

Product model: L14S3A01

### (b) Other means of identification

Product description: Voltage: 10.8V Ampere-hour: 2.2Ah Watt-hour: 24 Wh Content of Equivalent Li: 1.98g

### (c) Recommended use of the chemical and restrictions on use

Recommended use: Used for bluetooth headset, bluetooth speakers, cell phones, MID and other portable electronic products.

Restriction on use: No information available.

### (d) Details of the supplier of the product

Company name: Sanyo Electric Co., Ltd.

Address: 222-1, Kaminaizen, Sumoto City, Hyogo, Japan

Postcode: 656-8555

E-mail: joho\_gijutsu@gg.jp.panasonic.com

Telephone: +81-799-24-4111

Fax: +81-799-23-2879

### (e) Emergency phone number

[Weekday] +81-799-23-3931 [Night and holiday] +81-799-24-4131

## 2. Hazard(s) identification

### (a) Classification of the chemical

The battery is considered as an article, and this product is not classified as hazardous.

### (b) Label elements

Pictogram(s): No pictogram is used.

Signal word: No signal word is used.

Hazard statements: Not classified.

Precautionary statements: Not classified.

### (c) Description of any hazards not otherwise classified

Do not dismantle, open or shred the battery, the ingredients contained within could be harmful.

### (d) Ingredient with unknown acute toxicity

No information available.

## 3. Composition/information on ingredients

### (a) Mixtures information: ingredients contained within the battery

Chemical name	CAS No.	Typical concentration
Aluminum	7429-90-5	5%
Cobalt lithium manganese nickel oxide	182442-95-1	35%
Copper	7440-50-8	6.5%
Dimethyl carbonate	616-38-6	8%
Ethylene carbonate	96-49-1	4%
Graphite	7782-42-5	19%
Iron	7439-89-6	15%
Lithium hexafluorophosphate	21324-40-3	2%

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Nickel	7440-02-0	0.5%
Polyethylene	9002-88-4	2%
Polyethylene terephthalate	25038-59-9	1%
Polypropylene	9003-07-0	1%
Propylene carbonate	108-32-7	1%

## 4. First-aid measures

### (a) Description of first aid measures

Caution! No effect under routine handling and use. If exposure to internal materials within cell due to damaged outer metal casing, the following actions are recommended.

- Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if you feel unwell.
- Skin contact: Immediately flush skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Get medical aid.
- Eye contact: Rinse cautiously with water for 15-20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Ingestion: Rinse mouth with water. Never give anything through mouth to an unconscious person. Call a POISON Center or doctor if you feel unwell.

### (b) Most important symptoms/effects, acute and delayed

No effect under routine handling and use

### (c) Immediate medical attention and special treatment

Note to physicians: Treat symptomatically and supportively.

## 5. Fire-fighting measures

### (a) Extinguishing media

Suitable extinguishing media: Use extinguishing media suitable for the materials that are burning.

Unsuitable extinguishing media: Not available.

### (b) Special hazards arising from the chemical

Cell is not flammable but internal organic material will burn if the cell is incinerated.

Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide.

### (c) Special protective equipment and precautions for fire-fighters

If possible, remove cell(s) from fire fighting area. If heated above 130°C, cell(s) may Swell /explode /vent.

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

## 6. Accidental release measures

### (a) Personal precautions, protective equipment and emergency procedures

Restrict access to area until completion of clean up. Do not touch the spilled material.

Wear adequate personal protective equipment as indicated in section 8.

### (b) Methods and materials for containment and cleaning up

On Land: Place material into suitable containers and call local fire/police department.

In Water: If possible, remove from water and call local fire/police department.

## 7. Handling and storage

### (a) Precautions for safe handling

No special protective clothing required for handling individual cells. Do not dismantle, open the battery. Do not handling the battery with metalwork. Do not open, disassemble, crush or burn battery. Ensure good

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ventilation/exhaustion at the workplace. Prevent formation of dust. Keep ignition sources away. Do not smoke.

(b) Conditions for safe storage, including any incompatibilities

Store in a cool, dry place

## 8. Exposure controls/personal protection

### (a) Control parameters

CAS#7440-50-8

NIOSH RE: TWA 1 mg/m<sup>3</sup> OSHA PE: TWA 1 mg/m<sup>3</sup> The PEL also applies to other copper compounds (as Cu) except copper fume.

CAS#7429-90-5

NIOSH REL: TWA 10 mg/m<sup>3</sup> (total); TWA 5 mg/m<sup>3</sup> (resp)  
OSHA PEL: TWA 15 mg/m<sup>3</sup> (total); TWA 5 mg/m<sup>3</sup> (resp)

CAS#1333-86-4

NIOSH REL: TWA 3.5 mg/m<sup>3</sup> OSHA PEL: TWA 3.5 mg/m<sup>3</sup>

### (b) Appropriate engineering controls

Keep away from heat and open flame. Store in a cool dry place.

### (c) Personal protective equipment

Respiratory protection:

Not required during normal operations. SCBA required in the event of a fire.

Hand protection:

Not required for handling of cells.

Eye/face protection:

Not required beyond safety practices of employer.

Skin/body protection:

Not required for handling of cells.

## 9. Physical and chemical properties

(a) Appearance

Black solid

(b) Odor

Odourless

(c) Odor threshold

Not available.

(d) pH

Not available

(e) Melting point/freezing point

Not available

(f) Initial boiling point and boiling range

Not available

(g) Flash point

Not available

(h) Evaporation rate

Not available.

(i) Flammability

Not available.

(j) Upper/lower flammability or explosive limits

Not available.

(k) Vapor pressure

Not available

(l) Vapor density

Not available

(m) Density

Not available

(n) Water solubility

Not available.

(o) Partition coefficient: n-octanol/water

Not available

(p) Auto-ignition temperature

Not available.

(q) Decomposition temperature

Not available.

(r) Viscosity

Not available

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## 10. Stability and reactivity

### **(a) Reactivity**

None during normal operating or handling conditions.

### **(b) Chemical stability**

Stable under normal condition.

### **(c) Possibility of hazardous reactions**

No hazardous reactions known.

### **(d) Conditions to avoid**

Avoid exposure to heat and open flame. Do not puncture, crush or incinerate.

### **(e) Incompatible materials**

Strong oxidizing agents, strong acids, strong bases.

### **(f) Hazardous decomposition products**

None during normal operating conditions.

If cells are opened, hydrogen fluoride and carbon monoxide may be released.

## 11. Toxicological information

### **(a) Information on the likely routes of exposure**

- Inhalation: No effect under routine handling and use for sealed battery. If battery is broken, inhale fume/dust may cause irritation, chemical burns or lung oedema.
- Ingestion: No effect under routine handling and use for sealed battery. Harmful if swallowed the electrolyte contained inside the battery. Exposure to the electrolyte contained inside the battery may cause severe chemical burn to mouth, esophagus and gastrointestinal system.
- Skin contact: No effect under routine handling and use for sealed battery. Exposure to the electrolyte contained inside the battery may result in chemical burns. Exposure to battery particulate may cause dermatitis.
- Eye contact: No effect under routine handling and use for sealed battery. Exposure to the electrolyte contained inside the battery may result in severe irritation and chemical burns.

### **(b) Information on toxicological characteristics**

This product does not elicit toxicological properties during routine handling and use. If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers

- Acute toxicity:** No data available.
- Skin corrosion/irritation:** No data available.
- Serious eye damage/irritation:** No data available.
- Respiratory sensitization:** No data available.
- skin sensitization:** No data available.
- Carcinogenicity:** No data available.
- Germ Cell Mutagenicity:** No data available.
- Reproductive Toxicity:** No data available.
- STOT-Single Exposure:** No data available.
- STOT-Repeated Exposure:** No data available.
- Aspiration Hazard:** No data available.

## 12. Ecological information

### **(a) Ecotoxicity**

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No data available.

**(b) Persistence and Degradability**

No data available.

**(c) Bioaccumulative potential**

No data available.

**(d) Mobility in soil**

No data available.

**(e) Other adverse effects**

Some materials within the cell are bio-accumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

## 13. Disposal considerations

(a) Safe handling and methods of disposal

Dispose of according to all federal, state, and local regulations.

## 14. Transport information

(a) UN number	3480
(b) UN Proper shipping name	Lithium ion battery
(c) Transport hazard class(es)	Class9
(d) Packing group (if applicable)	IATA DGR 56th edition Packing Instruction 965 Section IB (Packing weight < 10kg)
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.

## 15. Regulatory information

**(a) Safety, health and environmental regulations specific for the product in question**

CAS No.	USA TSCA	China IECSC	Canada DSL/NDSL
12190-79-3	Listed	Listed	DSL
1073-05-8	Listed	Listed	NDSL
24937-79-9	Listed	Listed	DSL
7782-42-5	Listed	Listed	DSL
7440-50-8	Listed	Listed	DSL
7429-90-5	Listed	Listed	DSL
1333-86-4	Listed	Listed	DSL

Remark: The above-mentioned search results are based on the Non-Confidential Inventory.

## 16. Other information, including date of preparation or last revision

**(a) Preparation and revision information**

Date of previous revision: Not applicable.

Date of this revision: 5/09/2013

Revision summary: The first New SDS

**(b) Abbreviations and acronyms**

ACGIH	American Conference of Governmental Industrial Hygienists
OSHA:	The United States Occupational Safety and Health Administration.

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TWA: time-weighted average  
STEL: Short term exposure limit  
DOT: US Department Of Transportation)  
IMDG: International Maritime Dangerous Goods  
IATA: International Air Transport Association  
TSCA: Toxic Substances Control Act, The American chemical inventory.  
DSL: Domestic Substances List  
IECSC: Inventory of existing chemical substances in China.

**(c) Disclaimer**

The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

----- End of the SDS -----