

## SAFETY DATA SHEETS

**Section 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product Identification: Battery Pack

Rechargeable Battery Pack : 2S1P

Customer Model Name: TJEP Li-Ion battery, TJEP #100290

Product Manufacturing Place: Taiwan

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses of product: Application of P.T.

**1.3 Details of the supplier of the safety data sheet**

Manufacturer: STL Technology Co., Ltd.

Address: No. 1, West 15th Street, Cianjhen Dist. Kaohsiung, 806011 Taiwan, R.O.C.

Telephone number: +886-7-8411501

FAX: +886-7-8111314

**1.4 Emergency phone number:**

Emergency information service

National Poisons Information Centre: 01 8092566 or 01 8379964

**Section 2. Hazards Identification****2.1 Classification of the substance or mixture.**

**2.1.1 GHS Classification Categories: Not applicable with normal use.**

**2.1.2 Preparation Hazards and Classification:**

The product is a Lithium ion battery and is therefore classified as an article and is not hazardous when used according to the recommendations of the manufacturer. The hazard is associated with the contents of the battery. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the cell in the battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell in the battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous.

**2.1.3 Hazard Summary:**

**Physical hazards:** Not classified for physical hazards.

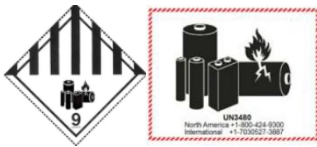
**Health hazards:** Not classified for health hazards.

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**Environmental hazards:** Not classified for hazards to the environment.

**Specific hazards:** Exposure to contents of an open or damaged cell or battery: contact with this material will cause burns to the skin, eyes and mucous membranes. May cause sensitization by skin contact.

## 2.2 Label elements



## 2.3 Other Hazards

**2.3.1 Appearance, Color and Odor:** Solid object with no odor.

**2.3.2 Primary Route(s) of Exposure:** thermally, electrically or physically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

### 2.3.3 Potential Health Effect(s):

**2.3.3.1 Acute (short term):** see Section 8 for exposure controls.

In the event that this cell or pack has been ruptured, the electrolyte solution contained within the cell would be corrosive and can cause burns to skin and eyes.

**Inhalation:** Inhalation of materials from a sealed cell is not an expected route of exposure. Vapors or mists from a ruptured cell may cause respiratory irritation.

**Ingestion:** Swallowing of materials from a sealed cell is not an expected route of exposure.

Swallowing the contents of an open cell can cause serious chemical burns to mouth, esophagus, and gastrointestinal tract.

**Skin:** Contact between the cell and skin will not cause any harm. Skin contact with the contents of an open cell can cause severe irritation or burns to the skin.

**Eye:** Contact between the cell and the eye will not cause any harm. Eye contact with the contents of an open cell can cause severe irritation or burns to the eye.

**2.3.3.2 CHRONIC (long term):** see Section 11 for additional toxicological data.

**2.3.4 Medical Conditions Aggravated by Exposure:** Not Available.

### 2.3.5 Interactions with other chemicals:

Immersion in high conductivity liquids may cause corrosion and breaching of the cell or battery enclosure. The electrolyte solution inside of the cells may react with alkaline (basic) materials and present a flammability hazard.

**2.3.6 Potential Environmental Effects:** Not Available.

## Section 3. Composition/information on ingredients

### 3.1 Substance: Lithium Ion Battery Pack

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3.2 CAS number: Not specified

3.3 Cases: PBT , not dangerous

3.4 Printed Circuit Board Assembly : Not dangerous

3.5 Lithium Ion Cell: SDI INR18650-25R 3.6V/2.5Ah

| CAS No.    | EC No.        | REACH<br>Registration<br>No. | %[weight] | Name                | Common Name<br>(Synonyms)        | Classification<br>according to<br>Regulation(EC) No<br>1278/2008(CLP) |
|------------|---------------|------------------------------|-----------|---------------------|----------------------------------|---|
| 12325-84-7 | Not available | -                            | 10~20     | Litium nickel oxide | Li <sub>2</sub> NiO <sub>2</sub> | Not classified  |
| 7440-44-0  | 231-153-3     | -                            | 10~20     | Carbon              | Carbon activated                 | Not classified  |
| 7439-89-6  | 231-096-4     | -                            | 10~20     | Iron                | Fe                               | Not classified  |
| 7440-50-8  | 231-159-6     | -                            | 5~15      | Copper              | Cu                               | Acute Tox. 4, H302  |

|              |               |   |          |                                     |                                    |   |
|--------------|---------------|---|----------|-------------------------------------|------------------------------------|---|
|              |               |   |          |                                     |                                    | Eye Irrit. 2, H319<br>Acute Tox. 3, H331<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                          |
| 12031-65-1   | 620-400-4     | - | 1~10     | Lithium nickel dioxide              | Lithium nickelate                  | Skin Sens. 1, H317<br>STOT RE 1, H372 **<br>Carc. 1A, H350i   |
| 7429-90-5    | 231-072-3     | - | 1~10     | Aluminium                           | Al                                 | Pyr. Sol. 1, H250<br>Water-react. 2,<br>H261(pyrophoric)<br>Flam. Sol. 1, H228<br>Water-react. 2,<br>H261(stabilised) |
| 12190-79-3   | 235-362-0     | - | 1~10     | Cobalt lithium dioxide              | Lithium cobaltite                  | Not classified  |
| 616-38-6     | 210-478-4     | - | 1~10     | Dimethyl carbonate                  | Carbonic acid<br>dimethyl ester    | Flam. Liq. 2, H225  |
| 12057-17-9   | 601-724-5     | - | 1~10     | Lithium Manganese (III,IV)<br>oxide | LiMn <sub>2</sub> O <sub>4</sub>   | Not classified  |
| 9002-88-4    | 618-339-3     | - | 1~10     | Polyethylene                        | Ethene,<br>homopolymer             | Not classified  |
| 96-49-1      | 202-510-0     | - | 1~3      | Ethylene carbonate                  | 1,3-Dioxolan-2-one                 | Not classified  |
| 21324-40-3   | 244-334-7     | - | 1~3      | Lithium<br>hexafluorophosphate(1-)  | lithium<br>hexafluorophospha<br>te | Not classified  |
| 7782-42-5    | 231-955-3     | - | 1~3      | Graphite                            | Grafito                            | Not classified  |
| 623-53-0     | 433-480-9     | - | 1~3      | Ethyl methyl carbonate              | EMC                                | Not classified  |
| Trade secret | Not available | - | 0.1~0.99 | Trade secret 1                      | Gasket material                    | Not classified  |

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|              |               |   |          |   |                          |  |
|--------------|---------------|---|----------|---|--------------------------|--|
| 7440-02-0    | 231-111-4     | - | 0.1~0.99 | Nickel  | Ni                       | Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT RE 1, H372<br>Aquatic Chronic 3, H412  |
| 25640-14-6   | 607-767-6     | - | 0.1~0.99 | 1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-cyclohexanedimethanol and 1,2-ethanediol | 1,2 ethanediol           | Not classified   |
| 9003-07-0    | 618-352-4     | - | 0.1~0.99 | 1-Propene, homopolymer  | Polypropylene            | Not classified   |
| 872-50-4     | 212-828-1     | - | 0.3~0.99 | 1-methyl-2-pyrrolidone  | 1-methylpyrrolidin-2-one | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335<br>Repr. 1B, H360D***   |
| 16812-54-7   | 240-841-2     | - | 0.1~0.99 | Nickel sulphide   | Nickel monosulfide       | Skin Sens. 1, H317<br>Muta. 2, H341<br>STOT RE 1, H372 **<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410<br>Carc. 1A, H350i |
| 26023-21-2   | 631-079-5     | - | 0.1~0.99 | Poly[N,N'-(1,4-phenylene)-3,3',4,4'-benzophenonetetracarboxylic imide/amic acid]                            | Imide resin              | Not classified   |
| 7440-21-3    | 231-130-8     | - | 0.1~0.99 | Silicon   | Ferro Silicon            | Acute Tox. 3 *, H301<br>Acute Tox. 3 *, H311<br>Acute Tox. 3 *, H331   |
| Trade secret | Not available | - | 0.1~0.99 | Trade secret 2  | Electrolyte additive     | Not classified   |

|            |               |   |          |  |   |                |
|------------|---------------|---|----------|--|---|----------------|
| 554-13-2   | 209-062-5     | - | 0.1~0.99 | Lithium carbonate  | Carbonic acid, dilithium salt               | Not classified |
| 1333-86-4  | 215-609-9     | - | 0.1~0.99 | Carbon black   | Carbon                                      | Not classified |
| 9003-55-8  | 618-370-2     | - | 0.1~0.99 | 1,3 Butadiene/styrene copolymers                                   | Styrene, butadiene copolymer                | Not classified |
| 26337-35-9 | Not available | - | 0.1~0.99 | Acetic acid ethenyl ester, polymer with carbon monoxide and ethene | Not available                               | Not classified |
| 9004-32-4  | 618-378-6     | - | 0.1~0.99 | Carboxymethyl cellulose sodium salt                                | Cellulose, carboxymethyl ether, sodium salt | Not classified |
| 110-61-2   | 203-783-9     | - | 0.1~0.99 | Succinonitrile   | Butanedinitrile                             | Not classified |
| 11089-89-7 | Not available | - | 0.1~0.99 | Aluminum lithium oxide (ALiO)                                      | Not available                               | Not classified |

### Section 4. First aid measures

#### 4.1 Description of first aid measures

The hazardous components of this cell or battery are contained within a sealed unit. The following measures are only applicable if exposure has occurred to components when a cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. The hazardous contents are caustic alkaline electrolytes contained in cells with lithium metal oxide cathodes, graphite and carbon anodes and Polyvinylidene fluoride binders.

**Inhalation:** Not anticipated. If battery is leaking, contents may be irritating to respiratory passages. Remove to fresh air. Contact physician if irritation persists.

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**Skin:** Not anticipated. If battery is leaking, irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

**Eye Contact:** Not anticipated. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for at least 30 minutes. Contact physician at once.

**Ingestion:** Not anticipated. Consult a physician immediately for treatment.

### PROTECTION FOR FIRST

**AIDERS:** Do not enter corrosive vapor contaminated areas without a respirator or Self Contained Breathing Apparatus. Wear adequate personal protective equipment as indicated in Section 8.

**FIRST AID FACILITIES:** Eye wash bottle, fountain, safety showers or at least a source of running water are required in the area where the product is used.

### 4.2 Most important symptoms and effects, both acute and delayed, caused by exposure:

**ACUTE:** The contents of the battery are rated as corrosive. Ingestion of the electrolyte could lead to severe gastrointestinal tract irritation with nausea, vomiting and potentially burns. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing. Eye contact may lead to severe eye irritation or in worst case scenario irreversible damage and possible eye burns. Skin contact may lead to irritation and possible skin burns.

**CHRONIC:** Skin contact may aggravate/exacerbate existing skin conditions, such as dermatitis. Chronic inhalation may lead to the same symptoms as listed for acute inhalation above.

### 4.3 Indication of any immediate medical attention and special treatment needed

**ADVICE TO DOCTOR:** Treat symptomatically if the person comes into contact with the corrosive electrolyte liquid contents of a damaged battery.

## Section 5. Firefighting measures

### 5.1 Extinguishing media

**5.1.1 Suitable extinguishing media:** Dry chemical, carbon dioxide and foam. Water acts as a cooling agent.

**5.1.2 Unsuitable extinguishing media:** Strong oxidizing agents, strong reducing agents, strong acids and strong alkalis. Despite water incompatibility, water is the most effective firefighting tool to control the spread of fire to other cells and batteries and combustibles.

**5.1.3 Explosion Data:** Closed containers may explode, burst, rupture or vent when exposed to temperatures above 120°C (248°F).

### 5.2 Special hazards arising from the substance or mixture:

The interaction of water vapor and exposed lithium hexafluorophosphate (LiPF<sub>6</sub>) may result in the

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generation of hydrogen and hydrogen fluoride (HF) gas. Contact with battery electrolyte may be irritating to skin, eyes and mucous membranes. Thermal degradation may produce hazardous fumes of lithium, cobalt and manganese, hydrofluoric acid, hydrogen and oxides of carbon, aluminum, lithium, copper and cobalt as well and smoke and irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

### 5.3 Advice for firefighters:

In case of fire where lithium-ion cells and batteries are present, flood the area with water. If any cells or batteries are burning, water may not extinguish them, but will cool the adjacent cells or batteries and control the spread of fire. Carbon Dioxide, dry chemical and foam extinguishers may be preferred for small fires, but also may not extinguish burning lithium-ion cells or batteries. Burning cells or batteries will burn themselves out. Virtually all fires involving lithium-ion cells and batteries can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

### 5.4 Protective Equipment and Precautions for firefighters:

In case of a fire and the release of hydrogen fluoride, it is critical to protect the skin from any contact. Fire fighters should wear a self-contained breathing apparatus. Burning lithium-ion cells and batteries can produce toxic fumes including hydrogen fluoride (HF), oxides of carbon, aluminum, lithium, copper and cobalt. Volatile phosphorous penta fluoride may form at temperatures above 110°C (230°F). Wear adequate personal protective equipment as indicated in Section 8.

## Section 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures:

- 6.1.1** As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed areas before entering. Wear adequate personal protective equipment as indicated in Section 8.

### 6.2. Environmental precautions:

- 6.2.1** Absorb spilled material with non-reactive absorbent such as vermiculite, clay or earth. Prevent from migration into soil, sewers and natural waterways – inform local authorities if this occurs.

### 6.3. Methods and material for containment and cleaning up:

- 6.3.1** Evacuate spill area immediately and remove sources of ignition. Do NOT touch spilled material. Cleanup personnel must be trained in the safe handling of this product. Spills may be absorbed on non-reactive absorbents such as vermiculite. Place cells or batteries into individual plastic bags and then place into appropriate containers and close tightly for disposal. Ensure that cleanup procedures do not expose spilled material to any moisture. Immediately transport closed

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containers outside. Lined steel drums are suitable for storage of damaged cells or batteries until proper disposal can be arranged.

### Section 7. Handling and storage

#### 7.1. Precautions for safe handling

- Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods.
- Do not directly heat or solder.
- Do not expose to extreme heat or fire
- Do not mix batteries of different types and brands.
- Do not mix new and used batteries.
- Do not immerse cell or battery in liquids as there is a danger of short circuiting the cells or batteries.
- Do not incinerate the cells or batteries as there is a danger of explosion.
- Do not use or charge damaged, defective or deformed cells or batteries.
- Keep batteries in non conductive (i.e. plastic) trays.
- This package must be handled with care and a flammability hazard exists, if the package is damaged.
- Do not damage or mishandle this package. If the package is damaged. The package must be inspected and if necessary, batteries must be repacked so as to prevent short circuit.
- Observe good industrial hygiene practices. Wash hands thoroughly after handling.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### 7.2.1 Conditions for safe storage:

Store in a cool, dry, well-ventilated area, out of direct sunlight and away from heat and ignition sources. To minimize any adverse effects on cell and/or battery performance, it is recommended that the cells and/or batteries be kept at room temperature (25°C +/- 5°C). Elevated temperatures can result in shortened cell and/or battery life. Keep out of reach of children. Store away from incompatible materials, see Section 10 of the SDS.

**7.2.2 Incompatibilities:** Water, strong oxidizing agents, strong reducing agents, strong acids and strong alkalis.

**7.3 Specific end use(s):** The Lithium-ion battery pack for this products such as NB 、 Power tool 、 E-bike 、 E-scooter 、 E-Car 、 UPS 、 ESS...

### Section 8. Exposure controls / personal protection

#### 8.1. Control Measures

**8.1.1 Exposure Limit Values:** Airborne exposures to hazardous substances are not expected when the cells or batteries are used for their intended purposes. Exposure standards are not applicable to the sealed articles.



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**8.1.2 Biological Monitoring:** Not applicable.

**8.1.3 Control Banding:** Not applicable.

**8.1.4 Recommended monitoring procedures:** Follow standard monitoring procedures.

**8.1.5 Derived no-effect level (DNEL):** Not applicable.

**8.1.6 Derived minimal effect level (DMEL):** Not applicable.

**8.1.7 Predicted no-effect concentrations (PNECs):** Not applicable

### 8.2. Exposure Controls:

**8.2.1 Engineering Controls:** Special ventilation is not required when using these products in normal use scenarios. Ventilation is required if there is leakage from the cell or battery.

#### 8.2.2 Individual Protection Measures

**8.2.2.1 Eye and Face protection:** Eye protection is not required when handling cells or batteries during normal use. Wear safety glasses/goggles if handling a leaking or ruptured cell or battery.

**8.2.2.2 Skin (Hand) protection:** Hand protection is not required when handling the cell or battery during normal use. PVC gloves are recommended when dealing with a leaking or ruptured cell or battery.

**8.2.2.3 Skin (clothing) protection:** Skin protection is not required when handling the cell or battery during normal use. Wear long sleeved clothing to avoid skin contact if handling a leaking or ruptured cell or battery. Soiled clothing should be washed with detergent prior to re-use.





**8.2.2.4 Respiratory protection:** During routine operation, a respirator is not required. However, if dealing with an electrolyte leakage and irritating vapors are generated, an approved half face inorganic vapor and gas/acid/particulate respirator is required.

**8.2.2.5 Thermal Protection:** Not applicable.

**8.2.2.6 Other Protective Equipment:** Have a safety shower or eye wash station readily available.

**8.2.3 Hygiene Measures:** Do not eat, drink or smoke in work areas. Avoid storing food, drink or tobacco near the product. Practice and maintain good housekeeping.

**8.2.4. Environmental exposure controls:** Avoid release to the environment.

| Respiratory Protection  | Hand Protection   | Eye Protection   | Other   |
|---|---|--|---|
|  |  |  |  |
| In all fire situations, use self-contained breathing apparatus.                     | In the event of leaking or ruptured cells or batteries, wear gloves.                | Safety glasses are recommended in case of leaking or ruptured cells or batteries.    | In the event of leaking or ruptured cells or batteries, wear protective clothing.     |



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## Section 9. Physical and chemical properties

|                              |                           |  |                |
|------------------------------|---------------------------|--|----------------|
| State                        | Solid, Sealed Unit        | Upper/lower flammability or explosive limits | Not Applicable |
| Physical state               | Solid object with no odor | Vapor pressure                               | Not Applicable |
| Color                        | Black                     |  |                |
| Odor Type                    | Odorless                  | Vapor density                                | Not Applicable |
| Odor threshold               | Not Applicable            | Relative density                             | Not Applicable |
| pH                           | Not Applicable            | Solubility in Water                          | Insoluble      |
| Vapor pressure               | Not Applicable            | Partition coefficient: n-octanol/water       | Not Applicable |
| Melting point/freezing point | Not Applicable            | Auto-ignition temperature                    | Not Applicable |
| Flash point                  | Not Applicable            | Decomposition temperature                    | 90°C           |
| Evaporation rate             | Not Applicable            | Kinematic viscosity                          | Not Applicable |
| Flammability (solid, gas)    | Not Applicable            | Particle characteristics                     | Not Applicable |

## Section 10. Stability and reactivity

**10.1 Chemical Stability:** The cells or batteries are stable under normal conditions of use, storage and transport.

**10.2 Possibility of hazardous reactions:** Keep away from water, strong oxidizing agents, strong reducing agents, strong acids and strong alkalis. Reaction of the leaking electrolyte materials with water may produce flammable and explosive hydrogen gas as well as corrosive hydrogen fluoride gas. Hazardous polymerization does not occur.

**10.3 Incompatible materials:** Do not immerse in water or other high conductivity liquids.

**10.4 Hazardous decomposition products:** May decompose to produce hydrogen fluoride, phosphorus oxides, sulfur oxides, sulfuric acid, lithium hydroxide, carbon monoxide and carbon dioxide.

**10.5 Reactivity:** The cells or batteries do not pose any further reactivity hazards other than those listed in the following sub-sections.

**10.6 Conditions to avoid:** Avoid exposing the cells or batteries to fire or temperatures above 80°C. Do not disassemble, crush, short circuit, puncture, immerse in liquid, burn, expose to flame or install with incorrect polarity. Avoid mechanical, physical or electrical abuse.

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### Section 11. Toxicological Information

#### 11.1 Information on toxicological effects:

The hazardous components of the cell or battery are contained within a sealed unit. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the battery leaks, is exposed to high temperature or is mechanically, electrically or physically abused/damaged. **The following toxicology data is in respect to if a person comes into contact with the electrolyte.**

#### 11.2 Acute Toxicity:

**11.2.1 Swallowed:** The electrolyte contained within the cell or battery is a corrosive liquid. Ingestion of this electrolyte would be harmful. Swallowing may result in nausea, vomiting, diarrhea, abdominal pain and chemical burns to the gastrointestinal tract. During normal usage ingestion should not be a means of exposure.

**11.2.2 Eye:** The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause irreversible damage to the eyes. Contact may cause corneal burns. Effects may be slow to heal after eye contact. Correct handling procedures incorporating appropriate eye protection should minimize the risk of eye irritation.

**11.2.3 Skin:** The electrolyte contained within the cell or battery is a corrosive liquid and it is expected that it would cause skin burns or severe irritation to the skin if not washed off immediately. Correct handling procedures should minimize the risk of skin irritation. People with pre-existing skin conditions, such as dermatitis, should take extreme care so as not to exacerbate the condition.

**11.2.4 Inhaled:** Inhalation of vapors from a leaking cell or battery is expected to cause severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.

**11.3 Skin Corrosion/Irritation:** The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit Dermal Corrosivity /Irritation.

**11.4 Serious Eye Damage/Irritation:** The electrolyte contained within the cell or battery is classified as a corrosive liquid and is expected to exhibit serious Damage/Corrosivity.

**11.5 Respiratory or Skin Sensitization:** The electrolyte contained within the cell or battery is not expected to be a skin sensitizer according to OECD test 406, based on the available data and the known hazards of the components. The electrolyte contained within the battery is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.

**11.6 Germ Cell Mutagenicity:** The electrolyte contained within the cell or battery is not expected to be mutagenic according to test such as OECD tests 471, 475, 476, 478 and 479, based on the available data and the known hazards of the components.

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- 11.7 Carcinogenicity:** The electrolyte contained within the cell or battery is not expected to be a carcinogen. The cathode contains Cobalt and Nickel components. These components are classified as IARC 2B – possibly carcinogenic to humans, however they do not pose a threat when contained in the cell or battery sealed unit.
- 11.8 Reproductive Toxicity:** The electrolyte contained within the cell or battery is not expected to be a reproductive hazard according to test such as OECD tests 414 and 421, based on the available data and the known hazards of the components.
- 11.9 Specific Target Organ Toxicity (STOT) – Single Exposure:** The electrolyte contained within the cell or battery is corrosive and is expect to cause respiratory irritation by inhalation. Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat; there may also be coughing or difficulty breathing.
- 11.10 Specific Target Organ Toxicity (STOT) – Repeated Exposure:** The cells or batteries are not expected to cause organ damage from prolonged or repeated exposure according to tests such as OECD tests 410 and 412, based on the available data and the known hazards of the components.
- 11.11 Aspiration Hazard:** The cells or batteries are not classified as an aspiration hazard, based on the available data and the known hazards of the components. However, due to the corrosive nature of the product if swallowed, do NOT induce vomiting. If vomiting has occurred after ingestion the person should be observed to ensure that aspiration into the lungs has not occurred and assessed for chemical burns to the gastrointestinal and respiratory tracts.
- 11.12 Information on other hazards:**
- 11.12.1 Endocrine disrupting properties:** Not available.
  - 11.12.2 Other information:** No additional data is available.

## Section 12. Ecological Information

- 12.1 Ecotoxicity:** The sealed cell or battery does not pose an Ecotoxicity hazard. Cells or batteries under normal use conditions pose no ecotoxicity hazard. In the case of a broken or damaged cell or battery and leakage of the electrolyte, it will react with water and potentially cause damage to flora and fauna if not disposed of properly. See Section 13 of this SDS for proper disposal considerations.
- 12.2 Persistence and degradability:** There is currently no data available.
- 12.3 Bio accumulative potential:** There is currently no data available.
- 12.3.1 Partition coefficient n-octanol/water (log Kow):** Not applicable.
  - 12.3.2 Bio concentration factor (BCF):** Not available.
- 12.4 Mobility in soil:** There is currently no data available.
- 12.5 Results of PBT and vPvB assessment:** Not a PBT or vPvB substance or mixture.
- 12.6 Endocrine disrupting properties:** Not available.
- 12.7 Other adverse effects:** Solid cells and batteries released into the natural environment will slowly

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degrade and may release harmful or toxic substances. Cells and batteries are not intended to be released into water or on land but should be disposed or recycled according to local regulations. See section 13 of this SDS for Disposal Considerations.

### Section 13. Disposal Consideration:

**13.1 Waste treatment methods:** Cell and battery recycling is encouraged. Cells and batteries should not be released into the environment, do **NOT** dump into any sewers, on the ground or into any body of water. Do not dispose of in fire. Used cells and batteries should be stored in their original packaging, a plastic bag or with their terminals/contacts taped, to minimize the potential for short-circuiting to occur. Cells and batteries should be fully discharged before being sent for recycling. Do not store used cells or batteries near heat sources, chemicals or food. Do not store or transport used lithium-ion cells or batteries with lead acid batteries as they have different regulatory requirements. Do not break open or damage lithium-ion cells or batteries prior to disposal. Care should be taken at all times to ensure that used cells or batteries are not damaged during storage or transport. Store material for disposal as indicated in Section 7 Handling and Storage.

**13.2 Classification of the waste to comply with Transport Regulations:** Spent lithium-ion cells and batteries are not considered hazardous waste. Lithium-ion cells and batteries involved in a fire may be considered to be hazardous waste and should be classified as such. Damaged lithium-ion cells and batteries are explicitly prohibited from transport by air.

**13.3 Classification of Packaging materials:** Unsoiled excess packaging should be disposed of according to any applicable recycling regulations and is not considered hazardous waste. Soiled packaging or packaging exposed to the interior of a lithium-ion cell or battery pack should be considered hazardous waste and disposed of according to local hazardous waste rules and regulations.

### Section 14. Transport Information

| Nominal Voltage(DCV) | Nominal Capacity(mAh) | Power(Wh) |
|----------------------|-----------------------|-----------|
| 7.2                  | 2500                  | 18        |

**14.1 UN number:** UN3480

**14.2 UN proper shipping name:** Lithium ion batteries

**14.3 Transport hazard class:** 9

**14.4 Packing group:** NA

**14.5 Environmental hazards:**

Marine Pollutant: No.

**14.6 Special precautions for user**

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**14.6.1** Lithium ion batteries only transport by air in accordance with PI965 at a state of charge (SOC) not to exceed 30 percent of rated design capacity.

**14.6.2** IATA/IMDG ERG Code: 12FZ

**14.6.3** DOT ERG Code: 147

**14.7 Maritime transport in bulk according to IMO instruments:** Not Applicable.

### Other information:

- **IATA(Air):**

Packing Instruction: 965

Section: IB

(Special Provision A88 、 A99 、 A154 、 A164 、 A183 、 A201 、 A206 、 A213 、 A331 、 A334 and A802 may apply depends on content goods of the transport).

- **IMDG(Sea)**

Packing Instruction: P903

( Packing Instruction P908 、 P909 、 P910 、 P911 、 LP903 、 LP904 、 LP905 & LP906 and Special Provision 188 、 230 、 310 、 348 、 376 、 377 、 384 & 387 may apply depends on content goods of the transport).

- **ADR(Land)**

Packing Instruction: P903

( Packing Instruction P908 、 P909 、 P910 、 P911 、 LP903 、 LP904 、 LP905 & LP906 and Special Provision 188 、 230 、 310 、 348 、 376 、 377 、 384 、 387 & 636 may apply depends on content goods of the transport).

- US Department of Transportation (DOT) 49 code of Federal Regulations [USA] International Civil Aviation Administration (ICAO)

- There are no hazards in accordance with the UN recommendations tests (Manual of Tests and Criteria, Part III, sub-section 38.3, 1.2m Drop)

| No | ITEMS               | RESULT | REMARKS       |
|----|---------------------|--------|---------------|
| 1  | Altitude Simulation | Pass   |               |
| 2  | Thermal Shock       | Pass   |               |
| 3  | Vibration           | Pass   |               |
| 4  | Shock               | Pass   |               |
| 5  | External Short      | Pass   |               |
| 6  | Impact/Crush        | Pass   | For cell only |
| 7  | Overcharge          | Pass   |               |
| 8  | Forced Discharge    | Pass   | For cell only |
| 9  | 1.2m Drop Test      | Pass   |               |

## SAFETY DATA SHEETS

### Section 15. Regulatory Information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

##### 15.1.1 International Information

15.1.1.1 Montreal Protocol: Not applicable

15.1.1.2 Stockholm Convention: Not applicable

15.1.1.3 Rotterdam Convention: Not applicable

15.1.1.4 Basel Convention: Not applicable

15.1.1.5 Marpol Convention: Not applicable

15.1.1.6 UN Transportation of Dangerous Goods: All cells and batteries have passed the applicable testing.

##### 15.1.2 United States Federal and State Regulations:

TSCA Status: All ingredients in these products are listed on the TSCA inventory.

OSHA: These products do not meet criteria as per Part 1910.1200, manufactured article.

SARA EPA Title III: None.

Sec. 302/304: None.

Sec. 311/312: None.

Sec. 313: None.

CERCLA RQ: None.

##### 15.1.3 EC Classification for the Substance/Preparation:

These products are not classified as hazardous according to Regulation (EC) No. 1272/2008.

Keep out of the reach of children.

##### 15.1.3.1 EU Regulations:

- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I: Not listed.

- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II: Not listed.

- Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I as amended: Not listed.

- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended: Not listed.

- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended: Not listed.

- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended: Not listed.

- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended: Not listed.

- Regulation (EC) No. 166/2006, REACH Article 59(10) Candidate List as currently published by ECHA: Not listed.



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### 15.1.3.2 EU Authorizations:

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended: Not listed

### 15.1.3.3 EU Restrictions on use:

- Regulation (EC) No. 1907/2006, REACH Annex XVII
- Directive 2004/37/EC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding: Not listed

### 15.1.3.4 Other EU Regulations:

- Directive 96/82/EC (Seveso II) on the control of major accident hazards involving dangerous substances: Not listed.
- Directive 94/33/EC on the protection of young people at work: Not listed.

### 15.1.4 Chinese Regulations:

- General Rule for Classification and Hazard Communication of Chemicals (GB 13690-2009): Specifies the classification, labeling and hazard communication of chemicals in compliance with the GHS standard for chemical production sites and labeling of consumer goods.
- General Rule for Preparation of Precautionary Labels for Chemicals (GB 15258-2009): Specifies the relevant application methods of precautionary labels for chemicals.
- Safety Data Sheet for Chemical Products Content and Order of Sections (GB/T 16483-2008)

**15.2 Chemical Safety Assessment:** Not applicable.

## Section 16. 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.

End of Safety Data Sheet