

# Safety Data Sheet

Date of Issue: August 5<sup>th</sup>, 2019

File No.: FYKJ20190726WERCS02

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product Identifier

**Name of Product:** Lithium ion cell

### 1.2 Other means of identification

**Product Models:** INR186SOS-2500mAh

**Nominal Voltage:** 3.6V

**Nominal capacity:** 2500mAh

**Nominal Power:** 9Wh

**Weight:** 44g

### 1.3 Recommended use of the chemical and restriction on use

**Recommended Use:** Rechargeable Li-ion Battery

**Restriction on Use:** No information available

### 1.4 Information Of Supplier:

**Company Name:** FULLY RICH TECHNOLOGY INC.

**Address:** 3F., NO.48, FUXING N. RD., ZHONGSHAN DIST., TAIPEI CITY 10488, TAIWAN (R.O.C.)

**Zip code:** 516006

**Contact person:** Ellen Shen

**Tel:** 886-0931065599

**E-mail:** ellen@fullyrichtek.com

### 1.5 Emergency Telephone

886- 0938887799

## 2. Hazard(s) Identification

### 2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

### 2.2 Label elements

#### 2.2.1 Signal Word**Danger**

#### 2.2.2 Hazard Statements

Causes skin irritation

Causes serious eye damage

Suspected of causing cancer

Causes damage to organs through prolonged or repeated exposure

#### 2.2.3 Symbol



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This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. Intended use of the product should not result in exposure to the chemical substance, this is a battery. In case of rupture: the above hazards exist.

## **2.3 Precautionary Statements**

### **2.3.1 Precautionary Statements – Prevention**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash face, hands and any exposed skin thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

Keep away from flames and hot surface –no smoking.

Do not breathe dust/fume/gas/mist/vapors/spray.

Do not eat, drink or smoke when using this product.

### **2.3.2 Precautionary Statements – Response**

If exposed or connected: Get medical advice/attention.

Specific treatment (see supplemental first aid/instruction on this label).

#### **Skin**

If ON SKIN: wash with plenty of soap and water.

Take off contaminated clothing and water before reuse.

If skin irritation or rash occurs: get medical advice/attention if feel unwell.

#### **Eye**

If IN EYES: Rinse cautiously with water for several minutes, remove contact lenses, if present and easy to do, Continue rinsing. Call a POISON CENTER or doctor/physician.

#### **Inhalation**

If inhalation: if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

#### **Ingestion**

If swallowed: rinse mouth, do not induce vomiting, Call a poison center or doctor/physician if feel unwell.

### **2.3.3 Precautionary Statements – Storage**

Store locked up

### **2.3.4 Precautionary Statements – Disposal**

Dispose of contents/container to an approved waste disposal plant.

## **2.4 Hazards not otherwise classified (HNOC)**

Not applicable

## **2.5 Unknown Toxicity**

39% of the mixture consists of ingredient(s) of unknown toxicity.

## **2.6 Other information**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## **2.7 Interactions with other chemicals**

Use of alcoholic beverages may enhance toxic effect.

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## 3. Composition/ Information on Ingredients

Chemical Name	Molecular formula	CAS No.	Weight%
Lithium cobaltate	LiCoO <sub>2</sub>	12190-79-3	43.87
Polyvinylidene Fluoride	(C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> ) <sub>n</sub>	24937-79-9	0.82
Aluminum	Al	7429-90-5	3.78
Graphite	C <sub>24</sub> X <sub>12</sub>	7782-42-5	23.37
Styrene Butadiene Rubber	C <sub>36</sub> H <sub>42</sub> X <sub>2</sub>	61789-96-6	0.99
Cellulose CM	C <sub>8</sub> H <sub>16</sub> O <sub>8</sub>	9000-11-7	0.42
Copper	Cu	7440-50-8	8.12
Nickel	Ni	7440-02-0	0.39
Lithium Hexafluorophosphate	LiPF <sub>6</sub>	21324-40-3	13.56
Polyethylene	(C <sub>2</sub> H <sub>4</sub> ) <sub>n</sub>	9002-88-4	2.61
NYLON 12	C <sub>36</sub> H <sub>69</sub> N <sub>3</sub> O <sub>3</sub> X <sub>2</sub>	24937-16-4	2.07

## 4. First Aid Measures

### **4.1 General Advice**

First aid is upon rupture of sealed battery.

#### **4.1.1 Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Seek immediate medical attention/advice.

#### **4.1.2 Skin Contact**

Wash off immediately with plenty of water and soap for at least 15 minutes. Remove and isolate contaminated clothing and shoes. Get medical attention if irritation develops and persists.

#### **4.1.3 Inhalation of Vented Gas**

Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen.

#### **4.1.4 Ingestion**

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

#### **4.1.5 Self-protection of the first aider**

Ensure that medical personnel are aware of the material(s) involved. Take precaution to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personnel protective equipment as required. Wear personnel protective clothing (see

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section8).

## **4.2 Most important symptoms and effects, both acute and delayed**

Burning sensation, Itching. Rashes. Hives, Coughing.

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

### **Notes to physician**

Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization of susceptible persons. Treat symptomatically.

## **5. Fire – Fighting Measures**

### **5.1 Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, CO<sub>2</sub>, water spray or regular foam. Move containers from fire area if you can do it without risk.

### **5.2 Unsuitable Extinguishing Media**

CAUTION: Use of water spray when fighting fire may be inefficient.

### **5.3 Specific Hazards Arising from the chemical**

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Product is or contains a sensitizer.

### **Hazardous Combustion products**

Carbon oxides

### **5.4 Explosion Data**

**Sensitivity to Mechanical Impact: None.**

**Sensitivity to Static Discharge: None.**

### **5.5 Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/IOSH (approved or equivalent) and full protective gear. Move containers from fire area if you can do it without risk.

## **6. Accidental Release Measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental Precautions**

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

### **6.3 Methods for containment**

Prevent further leakage or spillage if safe to do so. Absorb with earth, sand or

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other non-combustible material and transfer to containers for later disposal.

## 6.4 Methods for cleaning up

Pick up and transfer to properly labeled containers.

## 7. Handling and Storage

### 7.1 Precaution for safe handling

In case of rupture, use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.

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

#### **Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

#### **Incompatible products**

Strong acids. Strong oxidizing agent. Strong bases.

## 8. Exposure Controls/Personal Protection

### 8.1 Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA:2mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Lithium Cobalt Oxide 12190-79-3	TWA:0.02mg/m <sup>3</sup>	-	-
Lithium Hexafluorophosphate 21324-40-3	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F TWA: 2.5 mg/m <sup>3</sup> dust (vacated) TWA: 2.5 mg/m <sup>3</sup>	-

ACGIH TLV: American Conference of Governmental Industrial Hygienists-Threshold Limit Value

OSHA PEL : Occupational Safety and Health Administration-Permissible Exposure Limits

NIOSH IDLH Immediately Dangerous to Life or Health.

#### **Other Exposure Guidelines:**

Vacated limits revoked by the court of Appeals decision in AFL-CIO v. OSHA, 965F, 2d 962(11th Cir., 1992) See section 15 for national exposure control parameters.

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## 8.2 Appropriate engineering controls

### **Engineering Measures:**

Showers, Eyewash stations, Ventilation systems

## 8.3 Individual protection measures, such as personal protective equipment

**Respiratory protection :**No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Eye /face protection:**if splashes are likely to occur: Wear safety glasses with side shields(or goggles). None required for consumer use.

**Skin protection:** Wear protective gloves and protective clothing. Long sleeved clothing. Imperious gloves.

**Hygiene Measure:** Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. No information available.

## 9. Physical and Chemical Properties

**Physical State:** Solid

**Color:** No information available

**Odor:** No information available

**Odor Threshold:** No information available

**pH:** No data available

**Melting/freezing point:** No data available

**Boiling point/boiling range:** No data available

**Flash Point:** No data available

**Evaporation Rate:** No data available

**Flammability(Solid, gas):** No data available

**Flammability Limit in Air:** No data available

**Upper flammability limit:** No data available

**Lower flammability limit:** No data available

**Vapor pressure:** No data available

**Vapor density:** No data available

**Specific Gravity:** No data available

**Solubility:** Insoluble in water

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**Partition coefficient: n-octanol/water:** No data available

**Autoignition temperature:** No data available

**Decomposition temperature:** No data available

**Kinematic viscosity:** No data available

**Dynamic viscosity:** No data available

## 10. Stability and Reactivity

**Reactivity:**

No data available

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:**

None under normal processing.

**Hazardous Polymerization:**

Hazardous polymerization does not occur.

**Conditions to avoid:**

Do not subject battery to mechanical shock. Keep away from open flames, high temperature.

**Incompatible materials:**

Strong acids, Strong oxidizing agents. Strong bases.

**Hazardous decomposition products:**

Carbon oxides

## 11. Toxicological Information

### 11.1 Information on likely routes of exposure

**Product information:**

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:

**Inhalation:**

Specific test data for the substance or mixture is not available. Corrosive by inhalation(base on components). Inhalation of corrosion fumes/gases may cause coughing, choking, headache, dizziness and weakness for several hour. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure and increased heart rate. Inhaled corrosion substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

**Eye Contact:**

Specific test data for the substance or mixture is not available. Cause burns. ( based on components). Corrosion to the eyes and may cause severe damage including blindness. Cause serious eye damage. May cause irreversible damage to eyes.

**Skin Contact:**

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Specific test data for the substance or mixture is not available. Corrosion (based on components). Cause burns. Toxic in contact with skin. May be absorbed through the skin in harmful amounts.

## Ingestion:

Specific test data for the substance or mixture is not available. Cause burns. ( based on components). Ingestion cause burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed.

## Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000mg/kg ( Rat )	-	-

## 11.2 Information on toxicological effects

### Symptoms:

Erythema (skin redness). May cause redness and tearing of eyes. Itching. Rashes. Hives. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/or wheezing.

## 11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Sensitization:** May cause sensitization of susceptible person, May cause sensitization by skin contact. May cause sensitization by inhalation.

**Mutagenic Effects:** No information available.

**Carcinogenicity:** the table below whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide12190-79-3	A3	Group 2B		X

**ACGIH** (American Conference of Governmental Industrial Hygienists)

A3- Animal Carcinogen

**IARC** (International Agency for research on Cancer)

Group 2B- Possibly Carcinogenic to humans

**NTP** (National Toxicology Program)Reasonably Anticipated- reasonably anticipated to be a human Carcinogenic.

**OSHA**(Occupational safety and Health Administration of the US Department of Labor)

X-Present

**Reproductive Toxicity:** No information available.

**STOT- single exposure:** No information available.

**STOT- repeated exposure:** Cause damage to organs through prolonged or repeated exposure.

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Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. ( STOT RE )

**Chronic Toxicity:** Prolonged exposure may cause chronic effects. Repeated contact may cause allergic reactions in very susceptible persons. Contain a known or suspected carcinogen. Avoid repeated exposure. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.

**Target Organ Effects:** Respiratory system. Eyes. Skin. Gastrointestinal tract(GI). Blood. Central Nervous System(CNS). Kidney. Liver. Lungs. Nasal cavities.

**Aspiration Hazard:** No information available.

## **11.4 Numerical measures of toxicity product information**

The following values are calculated based on chapter 3.1 of the GHS document.

ATE mix(oral):6513mg/kg

ATE mix(dermal): 5141mg/kg (ATE)

## **12. Ecological Information**

### **Ecotoxicity :**

Chemical name	Toxicity to Aglae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
-	-	-	-	-

**Persistence and Degradability:** No information available

**Bioaccumulation:** No information available

**Other adverse effects:** No information available

## **13. Disposal Considerations**

### **13.1 Waste treatment methods**

#### **Disposal methods:**

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements. Should not be released into the environment.

#### **Contaminated Packaging:**

Dispose of in accordance with federal, state and local regulations.

#### **California Hazardous Waste Codes 141**

This product contains one or more substances that are listed with the State of California as a

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hazardous waste.

Chemical Name	California Hazardous Waste
Lithium cobaltate 12190-79-3	Toxic

## 14. Transportation Information

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

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 "PI965-967 section II of IATA-DGR" or "special provision188 of IMO-IMDG Code"

**DOT: NOT REGULATED**

**Proper Shipping Name:** NON REGULATED

**Emergency Response Guide Number:** 147

**Hazard Class:** N/A

**TDG:** Not regulated

**MEX:** Not regulated

**ICAO:** Not regulated

**IATA:** Not regulated

**Proper Shipping Name:** Not regulated

**Hazard Class:** Not regulated

**IMDG/IMO:** Not regulated

**Proper Shipping Name:** NON REGULATED

**Hazard Class:** N/A

**Ems No.:** F-A,S-1

**RID:** Not regulated

**ADR:** Not regulated

**AND:** Not regulated

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## 15. Regulatory information

### 15.1 International Inventories

TSCA Complies  
DSL All components are listed either on the DSL or NDSL.  
TSCA – United State Toxic Substance Control Act Section 8(b) Inventory  
DSL/NDSL – Canadian Domestic Substance List/Non-Domestic Substance List

### 15.2 US Federal Regulations

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight (%)	SARA313-Threshold values(%)
Lithium cobaltate	12190-79-3	43.87	0.1

### 15.3 SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

### 15.4 CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

### 15.5 CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

### 15.6 US State Regulations

#### **California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
-	-

#### **U.S State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Graphite 7782-42-5	x	x	x		
Lithium cobaltate 12190-79-3	x	x	x	x	x
Lithium Hexafluorophosphate 21324-40-3	x	x	x	x	x

### 15.7 International Regulations

#### **Mexico**

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National occupational exposure limits

Chemical Name	Carcinogen Status	Exposure Limits
Graphite		Mexico: TWA= 2 mg/m <sup>3</sup>

## Canada

WHMIS Hazard Class

Non-controlled

## 16. Other Information

### **Disclaimer:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used material used in combination with any other materials or in any process, unless specified in the test.

**Prepared By:** Guangzhou MCM Certification and Testing Co., Ltd.

**Issuing Date:** April 12, 2019

**Revision Date:** April 12, 2019

--- End of SDS ---