

**MATERIAL SAFETY DATA SHEET****INR18650 Lithium-Ion Battery****LG CHEMICAL LIMITED****1. Chemical Product and Company Identification****Product Identification**

INR18650 MJ1 (12.5Wh) Lithium-Ion Battery

**Manufacturer**

LG Chem Limited

Twin Tower

Youido-Dong, Youngdeungpo-Ku

Seoul, Korea

**Emergency Telephone Number**

82-2-3773-7417

**2. Composition Information**

<b>Hazardous Ingredients</b>	<b>%</b>	<b>CAS Number</b>
Aluminum Foil	2-10	7429-90-5
Nickel compound (proprietary)	0-80	
Manganese compound (proprietary)	0-15	
Cobalt compound (proprietary)	0-15	
Styrene-Butadiene-Rubber	<1	
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

### 3. Hazards Identification

#### Primary routes of entry

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

#### Symptoms of exposure

#### Emergency Overview

May explode in a fire, which could release hydrogen fluoride gas.  
Use extinguishing media suitable for materials burning in fire.

#### 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.

#### Reported as carcinogen

Not applicable

## 4. First Aid Measures

### **Inhalation**

Not a health hazard.

### **Eye contact**

Not a health hazard.

### **Skin contact**

Not a health hazard.

### **Ingestion**

If swallowed, obtain medical attention immediately.

**IF EXPOSURE TO INTERNAL MATERIALS WITHIN CELL 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.

## 5. Fire Fighting Measures

### 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.

### Extinguishing Media

Use extinguishing media suitable for the materials that are burning.

### Special Firefighting Instructions

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

### Firefighting Equipment

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

## 6. Accidental Release Measures

### 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

### Handling

No special protective clothing required for handling individual cells.

### Storage

Store in a cool, dry place.

## 8. Exposure Controls / Personal Protection

### Engineering controls

Keep away from heat and fire. Keep in a cool and dry place.

### 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.

## 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

## 10. Stability and Reactivity

### Reactivity

None

### Incompatibilities

There are nothings during a normal operation. Avoid exposure to heat, open flame, and corrosives.

### Hazardous Decomposition Products

There are nothings during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

### Conditions to Avoid

Avoid exposure from heat and fire. Do not puncture, crush, and incinerate.

## 11. Toxicological Information

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

Sensitization	Teratogenicity	Reproductive toxicity	Acute toxicity
NO	NO	NO	NO

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

## 12. Ecological Information

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are sealed into cell, and then there is no risk to persons or the surrounding environment.

## 13. Disposal Considerations

California regulated debris

RCRA Waste Code : Nonregulated

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

## 14. Transport Information

Lithium Ion batteries are considered to be "Rechargeable batteries" and meet the requirements of transportation by the U.S. Department of Transportation(DOT), International Civil Aviation Administration(ICAO).

Even classified as lithium ion batteries (UN3480), 2015 IATA Dangerous Goods Regulations 56<sup>th</sup> edition Packing Instruction 965 Section II is applied.

The Product is handled as Non-Dangerous Goods by meeting the following requirements.(1)

Lithium ion cells and batteries offered for transport are not suitable to other additional requirements of the UN Regulations if they meet the following ; (1)-(5)

1. for cells, the Watt-hour rating is not more than 20Wh
2. for batteries, Watt-hour rating is not more than 100Wh.
3. each cell or battery is of the type proven to meet the requirements of each test in UN Manual of Tests and Criteria Part 3 subsection 38.3
4. each cells comply with Special Provision A154.
5. Quantity per Package shall not exceed 10kg.

Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria Part 3 subsection 38.3.

The product has been evaluated according to the UN Manual of Tests and Criteria.

No.	Test Item	Criteria	Result
Test 1	Altitude simulation	-No leakage, venting, disassembly, rupture and no fire.  -Measuring mass before/after each test. (If M>5g, less than 0.1%)  -Measuring voltage before/after each test. (more than 90%)	Pass
Test 2	Thermal test		Pass
Test 3	Vibration		Pass
Test 4	Shock		Pass
Test 5	External short circuit	-No disassembly, rupture and fire within six hours of this test.	Pass
Test 6	Impact	-Max. temperature should not exceed 170 °C.	Pass
Test 7	Overcharge	-No disassembly and fire within seven days of the test.	Pass

## 15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

\_\_\_\_\_Hazardous

\_\_\_\_\_✓\_\_\_\_\_Non-hazardous