

## Explanatory sheet about safety of product for transportation

(Safety data sheet for transportation)

### 1. Basic item

Product name: Lithium ion battery ("Lithium ion battery" includes lithium ion polymer battery in this document)  
UN number: 3480  
Product Part Number: Refer to Table 1.  
Manufacturer: LG Chemical, Ltd.  
Address: LG Twin Towers, 128 Yeoui-daero, Yeongdeungpo-gu Seoul 07336, Korea  
Phone number: +82-2-3773-1114

### 2. Product information

Basic composition of the product

This product is a battery which consists of such main component as core battery pack assembled with some Lithium ion cells. And it consists of any combination of plastic casing, tube casing, protection circuit boards, safety devices and interface terminals.

### 3. Safety information

- LG Chemical certifies the battery has passed and satisfied the UN Manual of Tests and Criteria Part III, sub-section 38.3 testing in LG Chemical Shipping.
- LG Chemical manufactured the battery under the quality management program required in UN model regulations 2.9.4(e).

#### 3-1) Component cell

The Watt-hour rating of the component Lithium ion cells is not more than 20Wh.

#### 3-2) Battery pack

1. The Watt-hour rating of the battery is not more than 100Wh.
2. Package of the battery satisfies the following conditions when LG Chemical ships.
  - (1) The product name "Lithium ion batteries" and how to deal with the damage of the package are written on the label.
  - (2) The package has passed the drop test from the height of 1.2m.
  - (3) The package net weight is not more than 10kg.
3. The battery is not defective for safety reasons, not damaged. It is not collected battery for recycling or disposal.
4. The battery is not subject to the fully regulated requirements for Dangerous Goods in ocean and ground transportation.
5. The battery should be transported by Cargo aircraft as UN3480, class 9 Dangerous Goods, and state of charge not exceeding 30%, attached by required marks and labels, according to Packing Instruction 965 Section IB of the ICAO and IATA regulations.

Jan, 1, 2018

Jin Soo Park

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Battery Part Numbers			Battery Information						
Lenovo ASM Lenovo PN Part Number	Lenovo FRU Part Number	Lenovo model name	MSDS Type #	UN DOT 38.3 Test Certificate	Cell Voltage (V)	Battery Voltage (V)	Watt hour Rating (Wh)	Weight (grams)	Equivalent Lithium Content (grams)
45N1112	45N1113		SDS_LGPR181	45N1112_UN38.3	3.80	11.40	24	135	1.85
45N1126	45N1127		SDS_LGPR181	45N1126_UN38.3	3.80	11.40	24	180	1.85
45N1754	45N1755		SDS_LGPR181	45N1754_UN38.3	3.80	11.40	47	270	3.71
SB10J78989	00HW041		SDS_LGPR181	SB10J78989_UN38.3	3.80	11.40	47	180	3.71
SB10K12721	00NY639		SDS_LGPR181	SB10K12721_UN38. 3	3.80	11.40	44	250	3.55
121-500214		L12L3P53	SDS_LGPR181	121-500214_UN38.3	3.80	11.40	24	180	1.85

**MATERIAL SAFETY DATA SHEET**

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**MATERIAL SAFETY DATA SHEET**

**Product Name: Lithium Ion Rechargeable Battery**

**Product Code: None**

( All Prismatic Cell LG Chem. manufactured and whose capacity is less than 20Wh, And All Prismatic pack capacity is less than 100Wh)

**1. Company Identification**

**Manufacturer**

LG Chemical Ltd.

Twin Tower

Youido-Dong 120, Youngdeungpo-Ku

Seoul, Korea

**Emergency Telephone Number**

82-2-3773-7387

**2. Composition Information**

Hazardous Ingredients	%	CAS Number
Aluminum Foil	2-10	7429-90-5
Metal Oxide (proprietary)	20-50	

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Polyvinylidene Fluoride (PVDF)	<5	24937-79-9
Copper Foil	2-10	7440-50-8

### Emergency Overview

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

Carbon (proprietary)	10-30	7440-44-0
Electrolyte (proprietary)	10-20	
Stainless steel, Nickel and inert materials	Remainder	N/A
Styrene-butadiene-rubber	<5	

\* Not every product includes all of these materials.

## 3. Hazards Identification

### Primary routes of entry

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

### Symptoms of exposure

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### 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.

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### 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. 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 160°C, cell(s) may explode/vent.

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### 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.



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### Storage

Store in a cool, dry place.

## 8. Exposure Controls / Personal Protection

### Engineering controls

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

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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

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None

### Incompatibilities

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

### Hazardous Decomposition Products

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

### Conditions To Avoid

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

## 11. Toxicological Information

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

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Sensitization	Teratogenicity	Reproductive toxicity	Acute toxicity
NO	NO	NO	NO

If the cells are opened through misuse or damage, discard immediately.

Internal components of cell are irritants and sensitizers.

### 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.

### 13. Disposal Considerations

California regulated debris

RCRA Waste Code : Non-regulated

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

### 14. Transport Information

Lithium batteries are classified in Class 9 – Miscellaneous dangerous goods as:

- UN 3480, Lithium ion batteries
- UN 3481, Lithium ion batteries contained in equipment; or
- UN 3481, Lithium ion batteries packed with equipment.

With regard to transport of the product, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions,
- The International Air Transport Association (IATA) Dangerous Goods Regulations
- The International Maritime Dangerous Goods (IMDG) Code,
- 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,

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Manual of Tests and Criteria 38.3 Lithium batteries,

If those lithium-ion batteries are packed with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the 59<sup>th</sup> edition of 2018 IATA Dangerous Goods Regulations Section II of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous). If those lithium-ion batteries are packed with or contained in an equipment, UN No. is UN3481

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 III, subsection 38.3

### 15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous       Non-hazardous

## 16. Model list of application

Refer to Table 1.