



Material Safety Data Sheet (MSDS)

TREND Networks LanTEK III/IV/IV-S/L & SignalTEK 10G CT/FT/NT/Pro-Lithium-ion battery pack

1. Chemical Product and Company Identification

Lithium-Ion Battery
TREND Networks Part Number: R161058
Manufacturer Ref: ICR18650S3

Cells used in this battery

LG Chemical Ltd.
LG Twin Tower
Youido-Dong 120, Youngdeungpo-Ku
Seoul, Korea

Emergency Telephone Number 82-2-3773-7256

2. Chemical Product and Company Identification

Hazardous Ingredients	%	CAS Number
Aluminium Foil	2-10	7429-90-5
Metal Oxide (proprietary)	20-50	
Polyvinylidene Fluoride (PVDF)	<5	
Copper Foil	2-10	24937-79-9
Carbon (proprietary)	10-30	7440-50-8
Electrolyte (proprietary)	10-20	
Stainless steel, Nickel and inert material	Remainder	N/A

* Equivalent Lithium content: 0.66g / cell (Based on Cell)

Contact Information:

TREND Networks, Stokenchurch House, Oxford Road, Stokenchurch, High Wycombe, Buckinghamshire, HP14 3SX, United Kingdom



3. Caution & Prohibition

Caution

- When using the application equipped with the battery, refer to the user's manual before usage.
- Please read the specific charger manual before charging.
- Charge time should not be longer than specified in the manual.
- When the cell is not charged after long exposure to the charger, discontinue charging.
- Battery must be charged at operating temperature range 0 ~ 45°C.
- Battery must be discharged at operating temperature range -20 ~ 60°C.
- Please check the positive(+) and negative(-) direction before packing.
- When a lead plate or wire is connected to the cell for packing, check out insulation not to short-circuit.
- Battery must be stored separately.
- Battery must be stored in a dry area with low temperature for long-term storage.
- Do not place the battery in direct sunlight or heat.
- Do not use the battery in high static energy environment where the protection device can be damaged.
- When rust or smell is detected on first use, please return the product to the seller immediately.
- The battery must be away from children or pets
- When cell life span shortens after long usage, please exchange to new cells.

Prohibition

- Do not use different charger. Do not use cigarette jacks (in cars) for charging.
- Do not charge with constant current more than maximum charge current.
- Do not disassemble or reconstruct the battery.
- Do not throw or cause impact.
- Do not pierce a hole in the battery with sharp things. (such as nail, knife, pencil, drill)
- Do not use with other batteries or cells.
- Do not solder on battery directly.
- Do not press the battery with overload in manufacturing process, especially ultrasonic welding.
- Do not use old and new cells together for packing.
- Do not expose the battery to high heat. (such as fire)
- Do not put the battery into a microwave or high pressure container.
- Do not use the battery reversed.
- Do not connect positive(+) and negative(-) with conductive materials (such as metal, wire)
- Do not allow the battery to be immersed in or wetted with water or sea-water

This document comprises 9 pages (including this page). Follow-on pages are: - LG Chemical Limited Material Safety Data Sheet, which should be read in conjunction with TREND Networks LanTEK II/III/IV/IV-S & SignalTEK 10G CT/FT/NT/Pro- Lithium-ion battery pack.



LGCHEM

MATERIAL SAFETY DATA SHEET

MATERIAL SAFETY DATA SHEET
Model ICR18650S3 Lithium-Ion Battery
LG CHEMICAL LIMITED

1. Chemical Product and Company Identification

Product Identification

LGCHEM ICR18650S3 Lithium-Ion Battery

Manufacturer

LG Chemical Limited
 Twin Tower
 Youido-Dong, Youngdeungpo-Ku
 Seoul, Korea

Emergency Telephone Number

82-2-3773-7256

2. Composition Information

Hazardous Ingredients	%	CAS Number
Aluminum Foil	2-10	7429-90-5
Nickel compound (proprietary)	10-25	
Manganese compound (proprietary)	6-15	
Cobalt compound (proprietary)	4-10	
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 and Nickel and inert materials	Remainder	N/A

* Equivalent Lithium Content: 0.66g, Cell Energy: 7.92Wh





3. Hazards Identification

Emergency Overview

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

Primary routes of entry

Skin contact : NO
Skin absorption : NO
Eye contact : NO
Inhalation : NO
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.

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 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

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

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.

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 bioaccumulative. 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 : 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), 2012 IATA Dangerous Goods Regulations 53rd 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 subject 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 the 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.

15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous Non-hazardous