Safety Data Sheet

1. Product and Company Identification

Important Note: As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Commercial product name
NSL486586A

Use of the substance/preparation
Lithium-ion batteries

Synonyms
Lithium-ion Cell, Lithium-ion Pack, Lithium-ion Battery, Li-Ion Cell, Li-Ion Pack, Li-Ion Battery

Manufacturer
. Shenzhen BYD Lithium Battery Company Limited
Address ： No.3001,Baohe Road,Baolong Industry Zone,Longgang Street,Longgang,Shenzhen,Guangdong Province,P.R. China

HQ: No. 3009 byd road, pingshan new district, shenzhen city

Company/undertaking identification
Emergency Contact(Chemtrec)

+86-755-89888888

Further Information
Battery-System: Secondary Li-ion Battery
Nominal Voltage : 3.88V
Rated Capacity : 4860mAh
Wh rating : 18.86Wh
Weight : 62.82± 5% g
Anode (negative electrode): based on intercalation graphite
Cathode (positive electrode): based on lithiated metal oxide (Cobalt, Nickel, Manganese)

Remark:
The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. [BYD] makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

2. Hazards Identification

Protective Clothing	EC Classification	WHMIS (Canada)	SafeWork (Australia)
Not required with normal use.	Not classified as hazardous	Not applicable with normal use.	Not classified as hazardous
GHS Hazard Symbol	**JIS (Japan)**	**Taiwan**	**China**
Not applicable with normal use.	Not classified as hazardous	Not classified as hazardous	Not classified as hazardous

Classification of the substance or mixture.

Preparation Hazards and Classification: The product is a Lithium ion cell or 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 cell or battery. 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 cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous.

Hazard Summary
Physical hazards: Not classified for physical hazards.
Health hazards: Not classified for health hazards.
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.
Main Symptoms: Symptoms include itching, burning, redness and tearing.

Hazardous Materials Information Label (HMIS)
Health: 0
Flammability: 1
Physical Hazard: 0

Labelling

If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous

Symbol:

Signal word: Danger

GHS precautionary statements

Precautionary Statement(s) Prevention	P102: Keep out of reach of children. P103: Read label prior to use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking. P234: Keep only in original container. P254: Wash hands thoroughly after handling.
Response (If cell/battery leaks)	P260: Do not breathe vapor or spray. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301/330/331: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. P303/361/353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304/340: If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P363: Wash contaminated clothing before reuse. P370: In case of fire: Use carbon dioxide, dry chemical or water extinguisher.
Storage (Store as indicated in Section 7)	P402: Store in a dry place. P405: Store locked up. P410: Protect from sunlight.
Disposal	P406: Store any spilled/leaking electrolyte material in a corrosive resistant container with a resistant inner liner. P501: Dispose of batteries in accordance with applicable hazardous waste regulations.

Other Hazards.

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

Primary Routes(s) of Exposure: These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell or pack is mechanically, 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.

Potential Health Effect(s):

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

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.

Potential Environmental Effects: Not Available.

3. Composition/information on ingredients

Hazardous components

	Chemical Name	CAS No.	*Mass range in cell (g/g %)
Electrolyte salt	Lithium hexafluorophosphate	21324-40-3	0.5-3.4
Electrolyte solvent	EC DEC EMC PC EP PS	96-49-1 105-58-8 623-53-0 108-32-7 105-37-3 1120-71-4	0.5-5.1 1-6.8 0-5.1 0-1.7 0-5.1 0-0.6
PVDF	Ethene, 1,1-difluoro-, homopolymer	24937-79-9	0.2-1.0
Copper	Copper	7440-50-8	5-25
Aluminium	Aluminium	7429-90-5	4-8
Cathode	Cobalt lithium oxide,(CoLiO2)	12190-79-3	25-45
Anode	Graphite	7782-42-5	5-25
Nickel	Nickel	7440-02-0	0.1-1.5

Because of the cell structure the dangerous ingredients will not be available if used properly.
During charge process a lithium graphite intercalation phase is formed.

4. First Aid Measures

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 Polyvinylidenfluoride binders.

Ingestion: Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Quickly transport victim to an emergency care facility.
EYE: If eye contact with contents of an open cell occurs, immediately flush the contaminated eye(s) with water. Quickly transport victim to an emergency care facility.
Skin Contact: Immediately flush with water. If irritation or pain persists, seek medical attention.
Inhalation: Remove the patient from exposure into fresh air, seek medical attention.

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.

Most important symptoms & effects, acute & 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.

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.

5. Fire Fighting Measures

Suitable extinguishing media
Cold water and dry powder in large amount are applicable.
Use metal fire extinction powder or dry sand if only few cells are involved.

Special hazards arising from the chemical
May form hydrofluoric acid if electrolyte comes into contact with water.
In case of fire, the formation of the following flue gases cannot be excluded:
Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

Additional information
If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) can explode/vent. Cell is not flammable but internal organic material will burn if the cell is incinerated.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:
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.

Environmental precautions
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.

Methods and material for containment and cleaning up
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 containers outside. Lined steel drums are suitable for storage of damaged cells or batteries until proper disposal can be arranged.

7. Handling and Storage

Precaution for Handling

Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble.
Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Condition for storage
Storage at room temperature (approx. 20°C) at approx. 20~60% of the nominal capacity
(OCV approx. 3.6 - 3.9 V/cell).
Keep in closed original container.

8. Exposure controls/personal protection Exposure limit values Exposure limits

Exposure Control Measures

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.
Biological Monitoring: Not applicable.
Control Banding: Not applicable.
Recommended monitoring procedures: Follow standard monitoring procedures.
Derived no-effect level (DNEL): Not applicable.
Derived minimal effect level (DMEL): Not applicable.
Predicted no-effect concentrations (PNECs): Not applicable.

Engineering Controls

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.
Individual Protection Measures
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.
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.
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.
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.
Thermal Protection: Not applicable.
Other Protective Equipment: Have a safety shower or eye wash station readily available
.

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.

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.

9. Physical and Chemical Properties

Appearance

physical state,:	Solid
Color:	Various
Odor:	Odorless

Important health, safety and environmental information

Test method	
pHValue:	n.a.
Flash point:	n.a
Lower explosion limits:	n.a.
Vapour pressure:	n.a.
Density:	n.a.
Water solubility:	Insoluble
Ignition temperature:	n.a.

10. Stability and Reactivity

Stability
Stable

Conditions to avoid
Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or incinerate.

Materials to avoid
No materials to be especially mentioned.

Hazardous decomposition products
In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.

Possibility of Hazardous Reactions
Will not occur

Additional information
No decomposition if stored and applied as directed.

11. Toxicological Information

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.**

Acute Toxicity:
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.
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.

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.
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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

12. Ecological Information

Further information
Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.

13. Disposal Considerations

Advice on disposal
For recycling consult manufacturer.

Contaminated packaging
Disposal in accordance with local regulations.

14. Transport Information

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

- UN No. 3480
- UN proper shipping name: Lithium Ion Batteries.
- Transport hazard class : 9
- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 965, Section ⅠB or Ⅱ
- The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section ⅠB or Ⅱ
- The International Maritime Dangerous Goods (IMDG)
- Code [Special provision 188, 230]
- 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, Manual of Tests and Criteria 38.3 Lithium batteries, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type

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 latest edition of the 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

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria.

Test results of the UN Recommendation on the Transport of Dangerous Goods

Manual of Test and Criteria (38.3 Lithium batteries)		**Test Results**	**Remark**
No	Test item		
T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact/Crush	Pass	
T7	Overcharge	Pass	For pack and single cell battery only
T8	Forced Discharge	Pass	

15. Regulatory Information

Canadian Federal Regulations:

These products have been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
WHMIS Classification: Not Controlled, manufactured article.
New Substance Notification Regulations: Lithium hexafluorophosphate is listed on the Non-Domestic Substance List (NDSL). All other ingredients in the product are listed, as required, on Canada's Domestic Substances List (DSL).
National Pollutant Release Inventory (NPRI) Substances: These products do not contain any NPRI chemicals.

United States Federal and State Regulations:

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

Australia and New Zealand

SUSMP: Not applicable
AICS: All ingredients are on the AICS list.
HSNO Approval number: Not applicable
HSNO Group Title: Not applicable
NOHSC:10008 Risk Phrases: R34 - Causes Burns.
NOHSC:1008 Safety Phrases:
S1 – Keep locked up.
S2 – Keep out of reach of children.
S23 – Do not breathe vapor.
S24/25 – Avoid contact with skin and eyes.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27/28 – After contact with skin, take off immediately all contaminated clothing and wash immediately with plenty of water.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.
S56 – Dispose of this material and its container at hazardous waste or special waste collection point.
S62 – If swallowed, DO NOT induce vomiting: seek medical advice immediately and show this container or label.
S64 – If swallowed, rinse mouth with water (Only if the person is conscious).

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.

EU Restrictions on use:

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended: Aluminium (CAS 7429-90-5)

Other EU Regulations

This Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Japanese Regulations

Japanese Industrial Standards (JIS) JIS Z 7253:2012
Waste disposal and public cleaning law
Law for Promotion of Effective Utilization of Resources

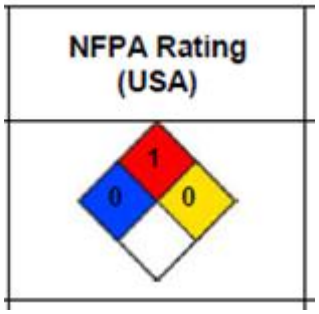
Taiwanese Regulations

Regulation of Labelling and Hazard Communication of Dangerous and Harmful Materials: Labeling requirements and other relevant provision of chemicals, this product is not classified as dangerous goods.
Toxic Chemicals Substance Control Law: Not Listed.
CNS 1030016 Safety of primary and secondary lithium cells and batteries during transport.

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)

16. Other Information



NFPA Hazard Ratings
Health: 0
Flammability: 1
Reactivity: 0
Unique Hazard:

Further Information
Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge. This data does not constitute a uarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)"
The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.

Safety Data Sheet

1. Product and Company Identification

Important Note: As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Commercial product name
NSL486586A

Use of the substance/preparation
Lithium-ion batteries

Synonyms
Lithium-ion Cell, Lithium-ion Pack, Lithium-ion Battery, Li-Ion Cell, Li-Ion Pack, Li-Ion Battery

Manufacturer
. Shenzhen BYD Lithium Battery Company Limited
Address ： No.3001,Baohe Road,Baolong Industry Zone,Longgang Street,Longgang,Shenzhen,Guangdong Province,P.R. China

HQ: No. 3009 byd road, pingshan new district, shenzhen city

Company/undertaking identification
Emergency Contact(Chemtrec)

+86-755-89888888

Further Information
Battery-System: Secondary Li-ion Battery
Nominal Voltage : 3.88V
Rated Capacity : 4860mAh
Wh rating : 18.86Wh
Weight : 62.82± 5% g
Anode (negative electrode): based on intercalation graphite
Cathode (positive electrode): based on lithiated metal oxide (Cobalt, Nickel, Manganese)

Remark:
The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. [BYD] makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

2. Hazards Identification

Protective Clothing	EC Classification	WHMIS (Canada)	SafeWork (Australia)
Not required with normal use.	Not classified as hazardous	Not applicable with normal use.	Not classified as hazardous
GHS Hazard Symbol	**JIS (Japan)**	**Taiwan**	**China**
Not applicable with normal use.	Not classified as hazardous	Not classified as hazardous	Not classified as hazardous

Classification of the substance or mixture.

Preparation Hazards and Classification: The product is a Lithium ion cell or 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 cell or battery. 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 cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous.

Hazard Summary
Physical hazards: Not classified for physical hazards.
Health hazards: Not classified for health hazards.
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.
Main Symptoms: Symptoms include itching, burning, redness and tearing.

Hazardous Materials Information Label (HMIS)
Health: 0
Flammability: 1
Physical Hazard: 0

Labelling

If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous

Symbol:

Signal word: Danger

GHS precautionary statements

Precautionary Statement(s) Prevention	P102: Keep out of reach of children. P103: Read label prior to use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking. P234: Keep only in original container. P254: Wash hands thoroughly after handling.
Response (If cell/battery leaks)	P260: Do not breathe vapor or spray. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301/330/331: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. P303/361/353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304/340: If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P363: Wash contaminated clothing before reuse. P370: In case of fire: Use carbon dioxide, dry chemical or water extinguisher.
Storage (Store as indicated in Section 7)	P402: Store in a dry place. P405: Store locked up. P410: Protect from sunlight.
Disposal	P406: Store any spilled/leaking electrolyte material in a corrosive resistant container with a resistant inner liner. P501: Dispose of batteries in accordance with applicable hazardous waste regulations.

Other Hazards.

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

Primary Routes(s) of Exposure: These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell or pack is mechanically, 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.

Potential Health Effect(s):

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

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.

Potential Environmental Effects: Not Available.

3. Composition/information on ingredients

Hazardous components

	Chemical Name	CAS No.	*Mass range in cell (g/g %)
Electrolyte salt	Lithium hexafluorophosphate	21324-40-3	0.5-3.4
Electrolyte solvent	EC DEC EMC PC EP PS	96-49-1 105-58-8 623-53-0 108-32-7 105-37-3 1120-71-4	0.5-5.1 1-6.8 0-5.1 0-1.7 0-5.1 0-0.6
PVDF	Ethene, 1,1-difluoro-, homopolymer	24937-79-9	0.2-1.0
Copper	Copper	7440-50-8	5-25
Aluminium	Aluminium	7429-90-5	4-8
Cathode	Cobalt lithium oxide,(CoLiO2)	12190-79-3	25-45
Anode	Graphite	7782-42-5	5-25
Nickel	Nickel	7440-02-0	0.1-1.5

Because of the cell structure the dangerous ingredients will not be available if used properly.
During charge process a lithium graphite intercalation phase is formed.

4. First Aid Measures

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 Polyvinylidenfluoride binders.

Ingestion: Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Quickly transport victim to an emergency care facility.
EYE: If eye contact with contents of an open cell occurs, immediately flush the contaminated eye(s) with water. Quickly transport victim to an emergency care facility.
Skin Contact: Immediately flush with water. If irritation or pain persists, seek medical attention.
Inhalation: Remove the patient from exposure into fresh air, seek medical attention.

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.

Most important symptoms & effects, acute & 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.

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.

5. Fire Fighting Measures

Suitable extinguishing media
Cold water and dry powder in large amount are applicable.
Use metal fire extinction powder or dry sand if only few cells are involved.

Special hazards arising from the chemical
May form hydrofluoric acid if electrolyte comes into contact with water.
In case of fire, the formation of the following flue gases cannot be excluded:
Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

Additional information
If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) can explode/vent. Cell is not flammable but internal organic material will burn if the cell is incinerated.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:
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.

Environmental precautions
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.

Methods and material for containment and cleaning up
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 containers outside. Lined steel drums are suitable for storage of damaged cells or batteries until proper disposal can be arranged.

7. Handling and Storage

Precaution for Handling

Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble.
Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Condition for storage
Storage at room temperature (approx. 20°C) at approx. 20~60% of the nominal capacity
(OCV approx. 3.6 - 3.9 V/cell).
Keep in closed original container.

8. Exposure controls/personal protection Exposure limit values Exposure limits

Exposure Control Measures

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.
Biological Monitoring: Not applicable.
Control Banding: Not applicable.
Recommended monitoring procedures: Follow standard monitoring procedures.
Derived no-effect level (DNEL): Not applicable.
Derived minimal effect level (DMEL): Not applicable.
Predicted no-effect concentrations (PNECs): Not applicable.

Engineering Controls

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.
Individual Protection Measures
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.
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.
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.
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.
Thermal Protection: Not applicable.
Other Protective Equipment: Have a safety shower or eye wash station readily available
.

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.

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.

9. Physical and Chemical Properties

Appearance

physical state,:	Solid
Color:	Various
Odor:	Odorless

Important health, safety and environmental information

Test method	
pHValue:	n.a.
Flash point:	n.a
Lower explosion limits:	n.a.
Vapour pressure:	n.a.
Density:	n.a.
Water solubility:	Insoluble
Ignition temperature:	n.a.

10. Stability and Reactivity

Stability
Stable

Conditions to avoid
Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or incinerate.

Materials to avoid
No materials to be especially mentioned.

Hazardous decomposition products
In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.

Possibility of Hazardous Reactions
Will not occur

Additional information
No decomposition if stored and applied as directed.

11. Toxicological Information

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.**

Acute Toxicity:
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.
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.

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.
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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

12. Ecological Information

Further information
Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.

13. Disposal Considerations

Advice on disposal
For recycling consult manufacturer.

Contaminated packaging
Disposal in accordance with local regulations.

14. Transport Information

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

- UN No. 3480
- UN proper shipping name: Lithium Ion Batteries.
- Transport hazard class : 9
- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 965, Section ⅠB or Ⅱ
- The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section ⅠB or Ⅱ
- The International Maritime Dangerous Goods (IMDG)
- Code [Special provision 188, 230]
- 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, Manual of Tests and Criteria 38.3 Lithium batteries, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type

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 latest edition of the 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

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria.

Test results of the UN Recommendation on the Transport of Dangerous Goods

Manual of Test and Criteria (38.3 Lithium batteries)		**Test Results**	**Remark**
No	Test item		
T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact/Crush	Pass	
T7	Overcharge	Pass	For pack and single cell battery only
T8	Forced Discharge	Pass	

15. Regulatory Information

Canadian Federal Regulations:

These products have been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
WHMIS Classification: Not Controlled, manufactured article.
New Substance Notification Regulations: Lithium hexafluorophosphate is listed on the Non-Domestic Substance List (NDSL). All other ingredients in the product are listed, as required, on Canada's Domestic Substances List (DSL).
National Pollutant Release Inventory (NPRI) Substances: These products do not contain any NPRI chemicals.

United States Federal and State Regulations:

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

Australia and New Zealand

SUSMP: Not applicable
AICS: All ingredients are on the AICS list.
HSNO Approval number: Not applicable
HSNO Group Title: Not applicable
NOHSC:10008 Risk Phrases: R34 - Causes Burns.
NOHSC:1008 Safety Phrases:
S1 – Keep locked up.
S2 – Keep out of reach of children.
S23 – Do not breathe vapor.
S24/25 – Avoid contact with skin and eyes.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27/28 – After contact with skin, take off immediately all contaminated clothing and wash immediately with plenty of water.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.
S56 – Dispose of this material and its container at hazardous waste or special waste collection point.
S62 – If swallowed, DO NOT induce vomiting: seek medical advice immediately and show this container or label.
S64 – If swallowed, rinse mouth with water (Only if the person is conscious).

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.

EU Restrictions on use:

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended: Aluminium (CAS 7429-90-5)

Other EU Regulations

This Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Japanese Regulations

Japanese Industrial Standards (JIS) JIS Z 7253:2012
Waste disposal and public cleaning law
Law for Promotion of Effective Utilization of Resources

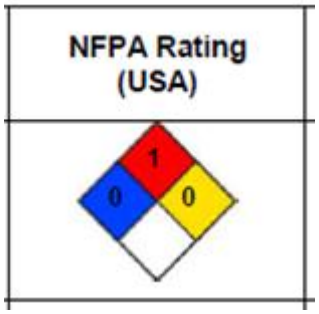
Taiwanese Regulations

Regulation of Labelling and Hazard Communication of Dangerous and Harmful Materials: Labeling requirements and other relevant provision of chemicals, this product is not classified as dangerous goods.
Toxic Chemicals Substance Control Law: Not Listed.
CNS 1030016 Safety of primary and secondary lithium cells and batteries during transport.

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)

16. Other Information



NFPA Hazard Ratings
Health: 0
Flammability: 1
Reactivity: 0
Unique Hazard:

Further Information
Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge. This data does not constitute a uarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)"
The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.

Amperex Technology Limited
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Issue: 2024-A Doc No.: 2024-A-000080 Issue Date: 12/07/2023

SAFETY DATA SHEET

1 Product & Company Identification

Product Identification

Chinese Name	锂离子电池
English Name	Lithium Ion Battery
Proper Shipping Name	Lithium Ion Battery
Product Description	Rechargeable lithium ion battery(1 Cell)
ATL Model Name	486587A
Customer Model Name	EB-BA166ABY / EB-BA166ABE
ATL PN	GB-S10-486587-020H / GB-S10-486587-320H
UN No.	UN3480
Capacity	4.86Ah
Nominal voltage	3.88V
Watt-hour	18.86Wh
Equivalent lithium content	1.46g
Approximate Weight	67g

Safety Data Sheet Provider Information

Manufacturer	Amperex Technology Limited
Address	3503,Wharf Cable TV Tower, 9 Hoi Shing Road,Tsuen Wan,N.T, HongKong China
Postcodes	999077
Telephone	852-2498-0908
Fax	852-2498-1101
E-mail Address	ND-EHS-M@ATLBattery.com

Emergency call

Emergency call	+86 5932582999

2 Hazardous Identification

As a whole, the battery is not dangerous in the correct use.	
Explosive risk	This article does not belong to the explosion dangerous goods
Flammable risk	This article does not belong to the flammable material
Oxidation risk	This article does not belong to the oxidation of dangerous goods

Toxic risk	This article does not belong to the toxic dangerous goods
Radioactive risk	This article does not belong to the radiation of dangerous goods
Mordant risk	This article does not belong to the corrosion of dangerous goods

3 Composition /Information on Ingredients

Important note: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Component	CAS No.	EC No.	%/wt.
Cobalt lithium dioxide	12190-79-3	235-362-0	15-40
Ethyl propionate	105-37-3	203-291-4	15-40
Copper foil	7440-50-8	231-159-6	10-30
Aluminum foil	7429-90-5	231-072-3	10-30
Graphite	7782-42-5	231-955-3	7-25
Ethylene Carbonate	96-49-1	202-510-0	0-15
Propylene Carbonate	108-32-7	203-572-1	0-15
Lithium Hexafluorophosphate(1-)	21324-40-3	244-334-7	0-15
1,3-propanesultone	1120-71-4	214-317-9	0-1
Separator	9002-88-4	618-339-3	0-5

4 First Aid Measures

First Aid Measures

Under normal conditions of use, the battery is hermetically sealed.	
Eye Contact	The ingredients in the battery can cause severe allergies and chemical burns. Open the upper and lower eyelids immediately and rinse the eyes with water for more than 15 minutes until no chemical remains. Then seek medical attention immediately.
Skin Contact	The ingredients in the battery may cause skin irritation or chemical burns. Remove contaminated clothing and wash skin with soap and water. Seek medical attention if chemical burns or irritation persists.
Ingestion	Ingesting the battery is harmful. The composition of the battery can cause severe chemical burns in the mouth, esophagus, and gastrointestinal tract. Do not induce vomiting or food or drink if you ingest the battery or disassemble the battery. Seek medical attention immediately.

Inhalation	Ingredients in the battery may cause respiratory allergies, and inhalation of vapor may cause upper respiratory tract and lung allergies. Breathe fresh air and seek medical attention immediately.

5 Fire Fighting Measures

Extinguishing media

Suitable fire extinguishing medium	Water or water mist, sand, fire blanket, dry powder or carbon dioxide fire extinguisher
Inappropriate extinguishing medium	None

Special hazards arising from this substance or mixture

1	In transportation and test engineering, risk factors such as electric box drop, extrusion, puncture, metal short circuit, liquid immersion may occur, and electric shock and fire risk may occur;
2	If in a confined space, there may be a risk of gas explosion.
3	Liquids leaking from accidents, including improper handling of fire water, pose a risk of environmental pollution.

Material prepare & training

Material prepare	
1	Water-based fire extinguishers: use 1 9-liter water-based fire extinguishers or 2 6-liter water-based fire extinguishers per 500KWH, which can extinguish ABCE fire (solid, non-flammable liquid, gas, electrical fire under 36KV). Or carry electric sprayer and manual sprayer as water mist fire extinguisher. Suspended water-based fire extinguishers can be hung on vehicles and goods.
2	Waterproof supplies: raincoat, rain boots, rubber gloves; Plastic wrap. Rags.
3	PPE: mask, high temperature gloves, safety glasses, half mask.
4	Smoke exhaust tools: The storage place should be well ventilated. It is recommended to set up a wall smoke exhaust fan every 20 meters or move the smoke exhaust fan.
Training skills	
1	Turn on or move fan to exhaust smoke
2	After fire control disposal, the product quality department will confirm whether it is necessary to scrap.
3	Use emergency materials to dispose of leaked electrolyte

Fire extinguishing precautions and protective measures

1	Alarm immediately when battery smoke or combustion is detected

2	Wear protective equipment, including respirators and masks. If water is used, PPE should include raincoats, rain boots, insulated gloves, etc.
3	Cut off the power supply
4	Using solid fire extinguishers, it is recommended to use fire extinguishers in the following order: water or mist, sand, fire blanket, dry powder, carbon dioxide fire extinguishers;
5	Exhaust smoke through fans or air circulation.

Figure1water based fire extinguisher (Could be used for 36KV electrical fire)

Figure2 waters prayers to fire extinguisher (Wear PPE to avoid electrical shock)

6 Accidental Release Measures

On-site: Place the material a suitable container and alert the local police.

In water: When the battery pack is in water, there is a risk of slight electric shock; when electrolyzing water, hydrogen will be generated. Ventilation must be maintained to prevent hydrogen accumulation and explosion in closed space. If possible, remove the batteries or modules from the water and alert the local police.

7 Handling & Storage

One of the most important risks in the transportation of batteries and battery power equipment is the short circuit of batteries caused by contact between the two poles of batteries with other batteries, metal objects or other conductors. Therefore, packaged batteries and battery cells must be separated in an appropriate way to prevent short circuit and electrode damage. In addition, batteries and battery cells must be packaged in strong external packaging or installed in equipment.

丨 Handling

1	Do not make excessive physical impact or vibration on batteries.

2	Short circuit should be avoided, although a few seconds of short circuit will not have a serious impact on the battery. A long short circuit can cause the battery to lose energy quickly and generate enough heat to burn the shell.
3	The sources of short circuit include the random placement of batteries in bulk containers or various metal objects used in battery assembly on equipment. In order to minimize the risk of short circuit of batteries, the protection measures of batteries should be provided when the batteries are transported and stored.
4	Batteries cannot be disassembled or deformed.
5	Do not expose the battery to water when it breaks. Operators need insulation protection when handling battery packs that exceed 50V.

Storage

1	When lithium-ion batteries are stored for a long time, their charging capacity should be between 25% and 75%.
2	Store in a cool, dry and well ventilated area.
3	Excessive temperature can lead to a series of battery problems, such as leakage or rust.
4	Do not put batteries in open fire.

8 Exposure Control/Personal Protection

Important note: The lithium battery is normally sealed and the powder has no fluidity and will not pose a danger to the contact person. It is strictly forbidden for non-professionals to dismantle batteries or cores without permission. Do not touch the leaked electrolyte if it is not necessary. If you need to actively contact the electrolyte, you need to wear chemical-resistant gloves and masks.

Engineering Control

Keep away from heat sources and fires and store in dry and cool areas.

9 Physical/Chemical Properties

Physical/Chemical Properties

Physical state	Solid
Color	Not Applicable
Odor	No Odor
Flash point	Not Applicable
Solubility in ethanol soluble	Not Applicable

Boiling Point	Not Applicable
Solubility in water:	Not Applicable
Vapor pressure	Not Applicable
Explosion limit	Not Applicable
Auto flammability	Not Applicable
Melting Point	Not Applicable
Freezing Point	Not Applicable

10 Stability & Reactivity

| Stability & Reactivity

Stability	Good stability at standard temperature.
Reactivity	None
Notice	Do not touch water or acidic substances. Products after decomposition: If the aluminum foil packaging of the battery is damaged, then do not contact strong oxidants, acidic substances and high temperature environment, and the electrolyte may volatilize to form hydrogen fluoride.

11 Toxicological information

No toxic substances will be produced during routine operation and use.

Caution: according to the harmonized classification and labelling (CLP00) approved by the European Union, 1,3 Propanesultone may cause cancer, is harmful if swallowed and is harmful in contact with skin. This substances meeting the criteria for classification in the hazard class reproductive toxicity category 1A or 1B, adverse effects on sexual function and fertility or on development in accordance with section 3.7 of Annex I to Regulation(EC) No 1272/2008.

12 Ecological information

If batteries are to be scrapped, they should be selected and disposed of by professional companies.

13 Disposal considerations

Batteries cannot be discarded directly into sewers or directly discharged into the environment. They should be recycled and treated in accordance with local laws and regulations.

14 Transport Information

Air transportation

The lithium battery should accord with the International Air Transport Association (IATA DGR 65th Edition) requirements for transportation. The battery or cell should be packed and signed as following table.

UN NO.	Proper Shipping Name	Power	Package requirements	Label which need to paste
UN3480	lithium ion batteries	Cells＞20Wh Batteries＞100Wh	PI965 Section IA **Limit per package:** Pax A/C=Forbidden CAO ≤35 kg	Class9 lithium battery hazard label Cargo Aircraft Only label 
		Cells≤20Wh Batteries≤100Wh	PI965 Section IB **Limit per package:** Pax A/C=Forbidden CAO ≤10 kg	Class9 lithium battery hazard label, Battery sign, Cargo Aircraft Only label 
UN3481	Lithium ion batteries contained in equipment	Cells＞20Wh Batteries＞100Wh	PI967 Section I **Limit per package:** Pax A/C ≤5 kg CAO ≤35 kg	Class9 lithium battery hazard label 
		Cells≤20Wh Batteries≤100Wh	PI967 Section II **Limit per package:** ≤2 batteries or ≤4 cells，and≤2 packages per consignment Pax A/C ≤ 5 kg CAO ≤5 kg	\
			PI967 Section II **Limit per package:** ＞2 batteries or ＞4 cells，or ＞2 packages per consignment Pax A/C ≤ 5 kg CAO ≤5 kg	Battery mark 

UN3481	lithium ion batteries packed with equipment	Cells＞20Wh Batteries＞100Wh	PI966 Section I **Limit per package:** Pax A/C ≤5 kg CAO ≤35 kg	Class9 lithium battery hazard label 
		Cells≤20Wh Batteries≤100Wh	PI966 Section II **Limit per package:** Pax A/C ≤5 kg CAO ≤5 kg	Battery mark 

Notes

1	Cells and/or batteries at a SOC of greater than 30% of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.
2	After receiving the lithium battery, if the mark is lost, fallen off or difficult to identify, the operator must replace the label according to the information provided in the "shipper's dangerous goods declaration form".
3	The lithium core and battery goods required by the packaging specification PI965 shall not be packed in the same outer package as other dangerous goods.
4	Ban lithium ion battery (UN 3480, PI965 Section IA or IB) with category 1 explosive material (except ammunition) 1.4, 2.1 flammable gas, flammable liquid, 4.1 3 flammable solid, 5.1 class antioxidant and other dangerous goods packaging in the same package.
5	Ensure that the equipment cannot be moved in the outer packing; If there are more than one piece of equipment in the package, it must be packed tightly together to prevent damage caused by contact with other equipment in the package.
6	Do not damage or mishandle this package. If package is damaged, batteries must be quarantined, inspected, and repacked.
7	Cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.
8	Waste lithium batteries and lithium batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator.
9	The lithium battery should pass the UN38.3 test, if the battery cannot pass the testing, it cannot transport, should redesign.
10	The new lithium battery operating mark allows to be 100mm x 100mm square, the minimum mark size is 100mm x70mm.
11	PI 966 and PI 969—Have been revised to clarify the packing options for Section I, which are:

	● the lithium cells or batteries are packed in a UN specification packaging, then placed with the equipment in a strong rigid outer packaging; or ● the cells or batteries are packed with the equipment in a UN specification packaging. The packing options in Section II have been deleted, as there is only one option available given that there is no requirement for UN specification packaging.
12	Lithium ion battery UN3480 PI965 Section IB, each package must withstand 3m stacking test.
13	In UN3481 PI 966 Section II, 967 Section II, when the package is put into the overpack, the package must be fixed in the overpack, and the overpack shall not affect the expected function of each package.

Ocean shipping

- Transportation refers to the IMDG CODE 41-22 Edition, which are managed according to UN NO 3480/3481 and packaged in the second category. Firm installation, isolation from each other, short circuit prevention, packages with more than 24 lithium cells or 12 lithium batteries: special procedures to be followed when damaged must be marked; special procedures document to be followed when damaged is available on board.
- The clause 188 of IMDG CODE 41-22 Edition required:

(1) The watt-hour rating of lithium ion cell is less than 20 Wh and the watt-hour rating of lithium-ion battery is less than 100 Wh is not classified as dangerous cargo,but each package shall be marked with below lithium battery mark.

(2) For cells and battery or those packed with equipment (except those contained in equipment)，the cells and battery must be packed in inner packagings，which shall completely enclose the cell and battery. The cells and battery pack shall be prevented from short circuit, including short circuit caused by contact with conductive materials in the same container. The inner packagings (and equipment (if any))shall be packed in strong outer packagings that in accordance with < Model Regulation>4.1.1.1、4.1.1.2、4.1.1.5.

- The clause 230 of IMDG CODE 41-22 Edition required:

(1) The model of each lithium ion cell and battery should meets all testing requirements under Part III, subsection 38.3 of <UN Manual of Tests and Criteria>.

(2) Shall be equipped with safe exhaust equipment, prevent violent rupture under normal transportation conditions.

(3) Shall be equipped with effective devices to prevent external short circuit.

- The LP906 of IMDG CODE 41-22 Edition required:

（1） The specific instructions for use of the package should be made available by the packaging manufacturers and subsequent distributors to the consignor.

Land transportation requirements

Transport shall be carried out in accordance with the relevant provisions of the List of Dangerous Goods (GB12268-2012), the European regulations concerning the international transport of dangerous goods by road (ADR), the Rules for the International Carriage of Dangerous Goods by Rail (RID), special provisions 188, and the Manual of Tests and Standards.

For more information, please contact : +86-769-88989338

15 Regulatory Information

Regulatory Information	See ACGIH exposure limits information as noted in Section3
US	This SDS meets/exceeds OSHA requirements.
International	This SDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-2010.
Air transportation	According to Civil aviation industry standard MH/T1020-2018 Lithium Battery Air Transport Standard and IATA DGR and ICAO. The international transport and commodity inspection is used this standard at the moment (IMDG CODE),
Ocean shipping	According to International Maritime Dangerous Goods Code to transport and According to the requirements of UN NO 3480/3481 to management the goods.
Land transportation	According to List of Dangerous Goods (GB12268). ADR, RID.
Avoid electrical shock	According to Standard for Electrical Safety in the Workplace, NFPA-70E.

16 Other Information

丨 Charging and labeling

Charging	The battery can be recharged repeatedly. Please use the original battery charger. Do not use modified or damaged battery chargers. When the charge exceeds the prescribed charging time, the charge can be stopped to prevent the battery from overcharging. Charging temperature should be between 0 and 45 (32° F and 113° F) (from the safety point of view, there is no experience value during fast charging). There is normal heating phenomenon in the process of battery charging.

Charging Voltages and Currents	When the voltage exceeds the specified value, it is limited by the internal protection circuit of the battery. If the protective circuit is damaged, please stop using it. Please charge and discharge under specified voltage and current. If the battery voltage drops below the specified minimum voltage, please stop using it.
Warning	Chargers provided by the equipment manufacturer shall be used and used in accordance with the operating guidelines. It is forbidden to open the battery, close to the source of fire, and short circuit, which may cause fire, explosion, leakage and personal injury.
Disposal	Disposal shall be carried out in accordance with the relevant regulations of the United Nations, the state and the local authorities.

丨 Declaration

The information contained here is completed without any authorization. This information is only a reference. Users should customize an independent system based on the complete and reliable information they actually collect, so as to ensure the proper use and handling of the safety and health of employees and customers.

安全技术说明书(SDS)

1 产品及企业标识

产品标识

产品中文名称	锂离子电池
产品英文名称	Lithium Ion Battery
运输名称	锂离子电池
产品类型	可充电锂离子电池(1 个电芯)
ATL 产品型号	486587A
客户产品型号	EB-BM526ABY
ATL PN	GB-S10-486587-010H/L GB-S10-486587-310H/L
UN 号	UN3480
额定容量	4.86Ah
额定电压	3.88V
瓦时数	18.86Wh
当量锂含量	1.46g
约计重量	67g

安全技术说明书提供者信息

企业名称	新能源科技有限公司
企业地址	香港新界荃湾海盛路 9 号有线电视大楼 35 楼 3 号单元
邮编	999077
联系电话	852-2498-0908
传真	852-2498-1101
电子邮箱	ND-EHS-M@ATLBattery.com

企业应急电话

企业应急电话	+86 5932582999

2 危险性概述

电池作为一个整体，在正确的使用下是不具有危险性。	
爆炸危险性	该物品不属于爆炸危险品
易燃危险性	该物品不属于易燃危险品
氧化危险性	该物品不属于氧化危险品
毒害危险性	该物品不属于毒害危险品

放射危险性	该物品不属于放射危险品
腐蚀危险性	该物品不属于腐蚀危险品

3 成分/组成信息

重要提示：电池不能拆开或燃烧，暴露电池中所在成分或燃烧产物是有害的。

组分	CAS No.	EC No.	含量百分比
钴酸锂	12190-79-3	235-362-0	15-40
丙酸乙酯	105-37-3	203-291-4	15-40
铜箔	7440-50-8	231-159-6	10-30
铝箔	7429-90-5	231-072-3	10-30
石墨	7782-42-5	231-955-3	7-25
碳酸乙烯酯	96-49-1	202-510-0	0-15
碳酸丙烯酯	108-32-7	203-572-1	0-15
六氟磷酸锂	21324-40-3	244-334-7	0-15
1,3 丙烷磺酸内酯	1120-71-4	214-317-9	0-1
隔离膜	9002-88-4	618-339-3	0-5

4 急救措施

| 急救措施描述

在常规条件下使用，电池是密封的。

眼睛接触	电池里的成分可能会引起严重的过敏和化学烧伤。万一接触，立刻翻开上下眼睑，用清水冲洗眼睛 15 分钟以上，直到没有化学物质残留。然后立刻就医。
皮肤接触	电池里的成分可能会引起皮肤过敏或化学烧伤。万一接触，除去污染的衣物并用肥皂和水清洗皮肤，如果发生化学烧伤或持续刺激，立刻就医。
食入	摄入电池是有害的。电池的成分可以导致嘴、食道、胃肠道严重的化学烧伤，如果摄入电池或拆开的电池，不要诱导呕吐或吃食物或饮料。应立刻就医。
吸入	电池里的成分可能会引起呼吸道过敏，吸入蒸汽可能引起上呼吸道和肺过敏。应马上呼吸新鲜空气并就医。

5 消防措施

| 灭火介质

合适的灭火介质	水或水雾、沙、灭火毯、干粉或二氧化碳灭火器
不合适的灭火介质	无

源于此物质或混合物的特别危害

1	在运输和测试过程中，可能发生电池（芯）跌落、挤压、刺破、金属短路、液体浸泡等危险因子，可能发生触电、起火风险。
2	如果在密闭空间，可能有气体爆炸风险。
3	事故泄露的液体，包括消防水处理不当有污染环境的风险。

物资准备和人员训练

物资准备	
1	水基灭火器：每 500KWH 用 1 个 9 升的水基灭火器或者 2 个 6 升的水基灭火器，可扑灭 ABCE 类火灾（固体、非易燃液体、气体、低于 36KV 的电气火灾）。或者携带电动喷雾器、手动喷雾器当水雾灭火器。车辆、货物上方可悬挂悬挂式水基灭火器。
2	防水用品：雨衣、雨靴、橡胶手套；保鲜膜；抹布。
3	个人保护用品（PPE）：口罩、高温手套、安全眼镜、半面罩。
4	排烟工具：存储场所应保持良好的通风，建议每 20 米设置 1 个墙壁排烟风机，或移动排烟风机。
训练技能	
1	开启风机或者移动风机排烟。
2	消防处置后，由产品品质部门确认是否需要进行报废处理。
3	使用应急物资对泄漏的电解液进行处置

灭火流程

1	发现电池冒烟或燃烧时立即报警。
2	穿着防护用品，包括呼吸器、口罩，如果用水还应包括雨衣、雨鞋、绝缘手套等。
3	切断电源。
4	使用固体类灭火器材，推荐按以下顺序使用灭火器材：水或水雾、沙、灭火毯、干粉、二氧化碳灭火器。
5	通过风扇或空气流通排烟。

图片 1 水基灭火器
（可使用灭 36KV 下的电气火灾）

图片 2 水雾灭火器
（穿着 PPE 防止触电）

6 泄露应急处理

现场：将物质置于合适的容器中，然后向当地警方报警。

在水中：当电池组在水中时，有微弱电击的风险；在电解水时会产生氢气，必须保持通风以防止氢气集聚，防止氢气在密闭空间爆炸。如果可以，将电池或模组从水中拿出然后向当地警方报警。

7 操作处置与储存

电池和电池动力设备运输时，最主要的风险之一就是电池两极接触其他电池、金属物体或其他导电体而引起的电池短路。因此，必须将包装好的电池（芯）和电池使用适当的方式隔开，以防止发生短路和电极破损。此外，电池和电池（芯）还必须包装在坚固的外包装内，或者安装在设备中。

| 操作注意事项

1	请勿对电池进行过度的物理冲击或振动。
2	应避免短路，虽然几秒钟的短路不会对电池造成严重的影响。长时间的短路会导致电池迅速失去能量，可以产生足够的热量将外壳烧着。
3	短路的来源包括将电池胡乱放在散装容器中、或在设备上进行电池装配时使用的各种金属物品。为了将电池短路的风险降低到最小，在电池运输和存储时，应该提供电池的保护措施。
4	不能将电池拆解或使电池变形。
5	电芯破裂时，不要将其接触到水。操作处理超过 50V 的电池组时，操作人员需要绝缘防护。

| 储存注意事项

1	当锂离子电池长时间储存时，其充电容量应在 25%和 75%之间。
2	应储存在干燥凉爽且通风较好的区域。
3	温度过高会导致电池发生一系列的问题，如泄漏或生锈。
4	请勿将电池置于明火中。

8 接触控制/个体防护

重要提示：锂电池正常处于密封状态，粉料无流动性，不会给接触人员带来危险性。非专业人员严禁私自拆解电芯/电池。无必要请勿接触泄露的电解液，若需主动接触电解液，需佩戴防化手套、口罩。

工程控制方法

远离热源和明火，存储于干燥凉爽的区域。

9 理化特性

理化特性

物料状态	固体
颜色	不适用
气味	无
闪点	不适用
在乙醇中的溶解度	不适用
沸点	不适用
在水中的溶解度	不适用
蒸气压力	不适用
爆炸极限	不适用
自燃性	不适用
熔点	不适用
凝固点	不适用

10 稳定性和反应活性

稳定性和反应活性

稳定性	在标准温度下稳定性很好。
反应作用	无
注意	不要接触到水或酸性物质。 分解后产物：如果电池的铝箔包装破损，那么就不要接触强氧化剂、酸性物质和高温环境，且电解液可能挥发形成氟化氢。

11 毒理学资料

常规操作和使用时，不会产生有毒物质。

注意：根据欧盟批准的统一分类和标签 (CLP00)，1,3 丙烷磺酸内酯可能致癌，吞咽有害，皮肤接触有害。符合法规(EC)No 1272/2008 附件 I 第 3.7 节规定的危险等级生殖毒性 1A 或 1B 类、对性功能和生育力或发育的不利影响分类标准的物质。

12 生态学资料

如果电池要报废，那么应当由专业公司进行挑选和处理。

13 废弃处置

不能直接将电池丢弃至下水道或直接排放到环境中，应当基于当地的法律法规进行回收和处理。

14 运输信息

空运要求

锂离子电池芯或电池应根据国际航空运输协会 IATA DGR 第 65 版相关要求进行运输。锂离子电池芯或电池按国际航空运输协会危险物品的规定，应依照下表要求进行包装和粘贴标签。

UN 号	运输品	功率	包装要求	需粘贴的标签
UN3480	锂离子电池	电池芯＞20Wh 电池＞100Wh	PI965 Section IA 每个包装件限量： 客机禁运 全货机≤35kg	第 9 类危险性标签-锂电池,仅限货机标签  
		电池芯≤20Wh 电池≤100Wh	PI965 Section IB 每个包装件限量：	第 9 类危险性标签-锂电池 电池标记，仅限货机标签

			客机禁运 全货机≤10Kg	
UN3481	锂离子电池安装在设备中	电池芯＞20Wh 电池＞100Wh	PI967 Section I 每个包装件限量： 客机≤5kg 全货机≤35kg	第 9 类危险性标签-锂电池， 
		电池芯≤20Wh 电池≤100Wh	PI967 Section II 每个包装件限量： ≤2 电池或≤4 电池芯，且≤2 包装件/票货物 客机≤5kg 全货机≤5kg	\
			PI967 Section II 每个包装件限量： ＞2 电池或＞4 电池芯，或＞2 包装件/票货物 客机≤5kg 全货机≤5kg	电池标记 
UN3481	锂离子电池与设备包装在一起	电池芯＞20Wh 电池＞100Wh	PI966 Section I 每个包装件限量： 客机≤5kg 全货机≤35kg	第 9 类危险性标签-锂电池， 
		电池芯≤20Wh 电池≤100Wh	PI966 Section II 每个包装件限量： 客机≤ 5kg 全货机≤5kg	电池标记 

注意事项

1	如果电池（芯）或电池的电荷载量大于 30%的荷电容量上限，需要获得原产地和运营商主管当局批准。
2	锂电池收运后，标志丢失、脱落或难以辨识时，经营人必须按照“托运人危险品申报单”提供的信息更换标签。
3	符合包装说明 PI965 要求的锂电芯和电池货物不得与其它危险品装入同一个外包装中。
4	禁止锂离子电池（UN 3480、PI965 Section IA or IB）与包括第 1 类爆炸物质（除第 1.4 类弹药）、第 2.1 类易燃气体、第 3 类易燃液体、第 4.1 类易燃固体、第 5.1 类氧化剂等危险品货物包装在同一个外包装中。
5	必须确保设备在外包装中不能移动；如包装中有多件设备的必须包装牢固在一起，以防止与包装中的其他设备接触而造成损坏。
6	不能损坏或错误处理电芯，如果电芯损坏，必须隔离、检查和重新包装。

7	禁止运输被厂商确定为出于安全原因的缺陷、已损坏、有潜在产生发热、着火或短路危险的电芯和电池。
8	除非经原产地国家相关的国家机关批准，禁止空运废锂电池（芯）和锂电池去回收或处理。
9	锂离子电池需经过 UN38.3 测试，如果未通过该测试，则不能运输，需重新设计。
10	使用新的锂电池操作标记，允许此标记为 100 x 100mm 正方形，最小的标记尺寸为 100x70mm。
11	PI966 和 PI969，已修订，以澄清第一节的包装选项：锂电芯或锂电池包装在 UN 箱中，然后与设备一起放入坚固外包装；或锂电芯或锂电池与设备一起包装在 UN 箱中。 第 II 部分的包装选择被删除，因只有一种包装方式，没有 UN 箱的要求。
12	锂离子电池 UN3480 PI965 Section IB，每个包裹须承受 3 米堆码试验。
13	UN3481 PI 966 Section II, 967 Section II 中，当包装放入合成包装内时,包件必须固定在合成包装中，且合成包装不得影响每个包装件预期应有的功能。

海运要求

运输参考《国际海运危险货物规则》(第 41-22 版)，按 UN NO 3480/3481 的要求管控，采用第II类包装。安装牢固，互相隔离，防止短路，装有多于 24 个锂电池或 12 个锂电池组的包件：须标记说明破损时遵守的特殊程序；随船备有一份破损时遵守的特殊程序说明文件。

《国际海运危险货物规则》(第 41-22 版)第 188 条规定：

（1）对于锂离子电池瓦特-小时的额定值不超过 20Wh，锂离子电池组瓦特-小时的额定值不超过 100Wh，不作为危险货物运输。但须在外壳标明瓦特-小时的额定值。

（2）对于电池和电池组或与设备一起包装的电池和电池组（安装在设备上的除外），应使用内容器包装，将电芯和电池组完全包裹。应防止电池和电池组发生短路，包括防止在同一容器内与导电材料接触而导致的短路。内容器（与设备（如果有））应放置于符合《规章范本》4.1.1.1、4.1.1.2 和 4.1.1.5 规定的坚固外容器内。

《国际海运危险货物规则》(第 41-22 版)第 230 条规定：

（1）每个电池或电池组的型号应符合联合国《试验和标准手册》第三部分第 38.3 节的各项试验的要求。

（2）电池和电池组装有安全的排气装置，或在正常运输条件下，其设计能防止发生剧烈破裂现象。

（3）电池和电池组装有防止外部短路的有效装置。

《国际海运危险货物规则》(第 41-22 版) LP906 规定：

（1）包装物的具体说明应由包装物制造商和随后的销售者提供给发货人。

陆运要求

根据《危险货物品名表》（GB12268-2012）、《危险货物国际道路运输欧洲公约》（ADR）、《国际铁路运输危险货物规则》（RID）里的特殊规定 188 条款、《试验和标准手册》的相关规定进行运输。

获取更多信息，请拨打联系电话：+86-769-88989338。

15 法规信息

法规信息	见 ACGIH 第三部分规定暴露限值信息。
美国	本物质安全数据资料符合 OSHAS 相关要求。
国际	本物质安全数据资料符合欧盟（联合国），国际标准化组织（ISO）和国际劳工组织（ILO）和美国（美国国家标准协会）标准 Z400.1-2010。
空运	参考民航行业规范 MH/T1020-2018《锂电池航空运输规范》与 IATA DGR、ICAO 的要求是一致的。目前国际运输及商检都是采用的这个标准
海运	运输参考《国际海运危险货物规则》，按 UN NO 3480/3481 的要求管理。
陆运	参考《危险货物品名表》（GB12268-2012）、ADR、RID。
防触电	参照工作场所电气安全标准 NFPA-70E。

16 其他信息

其他信息

充电	本电池可多次重复充电。请使用原装电池充电器。不要使用改装或损坏的电池充电器。当充电超过规定的充电时间可停止充电，来防止电池过充。充电温度应在 0℃-45℃（从安全角度考虑，没有快充时的经验值），电池充电过程中有正常的发热现象。
充电电压和电流	当电压超过规定的值后受到电池内部保护电路限制。如果出现保护电路受损情况，请停止使用。请在规定的电压和电流下充、放电。如果电池的电压下降到低于规定的最低电压时，请停止使用。
警告	应使用设备制造商提供的充电器并按操作指南使用。禁止将电池打开，靠近火源，以及短路，可能引起着火、爆炸、泄漏造成人身伤害。
处置	依照联合国、国家、地方相应规程进行处置。

声明

这里包含的信息是没有任何授权下完成的。该信息只作为一个参考，使用者应该根据自己实际搜集的完整可靠的信息来定制独立的体系，从而确保能够适当的使用并处理员工和顾客的安全及健康。