



SAFETY DATA SHEET

For

BYD COMPANY LIMITED

Yan An Road, Kuichong Longgang Shenzhen

And for their product

Li-ion Cylindrical Rechargeable Battery

Model/type reference : INR18650 M26-4S1P

Nominal Voltage : 14.4V

Typical Capacity : 2500mAh (36Wh)

Version number : V2.0

Revision date : 4-December-2017

Prepared by : **Shenzhen NTEK Testing Technology Co., Ltd.**
1/F, Building E, Fenda Science Park, Sanwei Community,
Xixiang Street, Bao'an District, Shenzhen 518126 P. R. China

The supplier identified below generated this SDS using the NTEK SDS template. NTEK did not test, certify, or approve the substance described in this SDS, and all information in this SDS was provided by the supplier or was reproduced from publically available regulatory data sources. NTEK makes no representations or warranties regarding the completeness or accuracy of the information in this SDS and disclaims all liability in connection with the use of this information or the substance described in this SDS.

Compiled by (name+ signature) ..: Bill.Song

Bill Song

Approved by (+ signature) : Kevin Zou

Kevin Zou

Shenzhen NTEK Testing Technology Co., Ltd.

Address: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China
Tel: +86-755-6115 6588 Fax: +86-755-6115 6599 <http://www.ntek.org.cn>

Section 1- Identification of the Substance/Preparation and of the Company/Undertaking

Product Identifier

Product Name: Li-ion Cylindrical Rechargeable Battery

Model No.: INR18650 M26-4S1P

Other means of identification

Synonyms: None

Recommended use of the chemical and restrictions on use

Recommended Use: LITHIUM ION BATTERIES

Uses advised against: No information available

Details of the supplier of the safety data sheet

Manufacturer's/ Supplier Name: BYD COMPANY LIMITED

Address: Yan An Road, Kuichong Longgang Shenzhen

Telephone number of the manufacturer/supplier: +86-755-89888888

Emergency Telephone Number (24h): +86-755-89888888

E-mail address: Xiao.peng2@byd.com/yang.hongzao@byd.com

Section 2 – Hazards Identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) this product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

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


GHS Label elements, including precautionary statements

Emergency Overview

Signal word: Danger

Hazard Statements

- Causes skin irritation
- Causes serious eye irritation
- May cause an allergic skin reaction
- May cause cancer



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

Appearance fruit green **Physical State** Solid containing liquid **Odor** Odorless

Precautionary Statements - Prevention	Obtain special instructions before use Do not handle until all safety precautions have been read and understood Use personal protective equipment as required Wash face, hands and any exposed skin thoroughly after handling Contaminated work clothing should not be allowed out of the workplace Wear protective gloves Do not breathe dust/fume/gas/mist/vapors/spray Do not eat, drink or smoke when using this product
Precautionary Statements - Response	IF exposed or concerned: Get medical advice/attention Specific treatment (see supplemental first aid instructions on this label) IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention IF ON SKIN: Wash with plenty of soap and water Take off contaminated clothing and wash before reuse If skin irritation or rash occurs: Get medical advice/attention
Precautionary Statements - Storage	Store locked up
Precautionary Statements - Disposal	Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)	Not applicable
Unknown Toxicity	-
Other information	May be harmful if swallowed Very toxic to aquatic life with long lasting effects Repeated or prolonged skin contact may cause allergic reactions with susceptible persons
Interactions with Other Chemicals	No information available.

Section 3 – Composition/Information on Ingredients

Chemical Name	CAS Number	Weight-%	Trade Secret
Cobalt lithium manganese nickel oxide	346417-97-8	55	
2,5-Furandione, polymer with 1,3-butadiene and ethenylbenzene	27288-99-9	1	
1,1-Difluoroethylene polymer	24937-79-9	2	
Aluminum foil	7429-90-5	5	
Copper	7440-50-8	5	
Carbon	7440-44-0	20	
Ethylene carbonate	96-49-1	10	
Phosphate(1-), hexafluoro-, lithium	21324-40-3	2	

* The exact percentage (concentration) of composition has been withheld as a trade secret.

Section 4 – First-aid Measures

General Advice	<p>First aid is upon rupture of sealed battery.</p> <p>Eye contact: If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area.</p> <p>Skin contact: Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.</p> <p>Inhalation: Remove to fresh air. If symptoms persist, call a physician. Get medical attention immediately if symptoms occur.</p> <p>Ingestion: Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician.</p> <p>Self-protection of the first aider: Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).</p>
Most important symptoms and effects, both acute and delayed	Most important symptoms and effects: Itching. Coughing and/ or wheezing.
Indication of any	Notes to Physician: Treat symptomatically. May cause sensitization of

<p>immediate medical attention and special treatment needed</p>	<p>susceptible persons.</p>
--	-----------------------------

Section 5 – Fire-fighting Measures

<p>Suitable extinguishing Media</p>	<p>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.</p>
<p>Unsuitable extinguishing Media</p>	<p>CAUTION: Use of water spray when fighting fire may be inefficient.</p>
<p>Specific Hazards arising from the chemical</p>	<p>Product is or contains a sensitizer. May cause sensitization by skin contact.</p>
<p>Hazardous Combustion Products</p>	<p>Carbon oxides.</p>
<p>Explosion Data</p>	<p>Sensitivity to Mechanical Impact: No. Sensitivity to Static Discharge: No.</p>
<p>Protective Equipment and precautions for firefighters</p>	<p>As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.</p>

Section 6 – Accidental Release Measures

<p>Personal Precautions, protective equipment, and emergency procedures</p>	<p>Personal Precautions: Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Other Information: Refer to protective measures listed in Sections 7 and 8.</p>
<p>Environmental Precautions</p>	<p>Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so.</p>
<p>Methods and material for containment and cleaning up</p>	<p>Methods for Containment: Prevent further leakage or spillage if safe to do so. Methods for cleaning up: Pick up and transfer to properly labeled containers.</p>

Section 7 – Handling and Storage

<p>Precautions for safe handling</p>	<p>Handling: In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.</p>
---	--



Conditions for safe storage, including any incompatibilities	Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Products: Strong acids. Strong oxidizing agents. Strong bases.
---	--

Section 8 – Exposure Controls and Personal Protection

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cobalt lithium manganese nickel oxide 346417-97-8	TWA: 0.02 mg/m ³		
Copper 7440-50-8	TWA: 0.2 mg/m ³ fume TWA: 1 mg/ mg/m ³ Cu dust and mist	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Aluminum foil 7429-90-5	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ Al Aluminum	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

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

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

IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962

(11th Cir., 1992) See section 15 for national exposure control parameters

Appropriate engineering controls	Engineering Measures: Showers Eyewash stations Ventilation systems.
Individual protection	Eye/Face Protection: If splashes are likely to occur: Wear

<p>measures, such as personal protective equipment</p>	<p>safety glasses with side shields (or goggles). None required for consumer use.</p> <p>Skin and Body Protection: Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves.</p> <p>Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.</p> <p>Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.</p>
---	---

Section 9 - Physical and Chemical Properties

Physical Properties	Physical state: Solid containing liquid	
	Appearance: fruit green and Prismatic	
	Color: fruit green	
	Odor: Odorless	
	Odor Threshold: No information available	
Chemical Properties:		
Property	Values	Remarks/ Method
pH	No data available	None known
Melting / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Insoluble in water	None known

Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	0.00001	None known
Autoignition temperature	130°C	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	0.00001	None known
Explosive properties	No data available	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

Section 10 - Stability and Reactivity

Reactivity	No data available.
Chemical stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	None known based on information supplied.
Incompatible materials	Strong acids. Strong oxidizing agents. Strong bases.
Hazardous Decomposition Products	Carbon oxides.

Section 11 - Toxicological Information

Information on likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.
Inhalation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
Eye Contact	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation.
Skin Contact	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. Prolonged contact may cause redness and irritation.



Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
------------------	---

Component Information

No information available

Information on toxicological effects	Symptoms: Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	Sensitization: May cause sensitization of susceptible persons. May cause sensitization by skin contact. Mutagenic Effects: No information available. Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Cobalt lithium manganese nickel oxide 346417-97-8	A3	Group 1 Group 2B	Known	X

<p>ACGIH (American Conference of Governmental Industrial Hygienists) A1 - Known Human Carcinogen A3 - Animal Carcinogen</p> <p>IARC (International Agency for Research on Cancer) Group 1 - Carcinogenic to Humans Group 2B - Possibly Carcinogenic to Humans Group 3 - Not Classifiable as to Carcinogenicity in Humans</p> <p>NTP (National Toxicology Program) Known - Known Carcinogen</p> <p>OSHA (Occupational Safety and Health Administration of the US Department of Labor) X - Present</p>
--

Reproductive Toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).
Chronic Toxicity	Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.

Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS).Kidney. Liver. Lungs. Heart.
Aspiration Hazard	No information available.

Numerical measures of toxicity Product Information

The values which are on the right are calculated based on chapter 3.1 of the GHS document.	ATEmix (oral) ATEmix (dermal) ATEmix (inhalation-dust/mist)
--	--

Section 12 - Ecological Information

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)		48h EC50: = 0.03 mg/L

Persistence and Degradability	No information available.
Bioaccumulation	No information available
Other adverse effects	No information available.

Section 13 – Disposal Considerations

Waste treatment methods

Disposal methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered



material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

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

No information available

California Hazardous Waste Codes 141

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

Chemical Name	California Hazardous Waste
Cobalt lithium manganese nickel oxide 346417-97-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder
Copper 7440-50-8	Toxic

Section 14 – Transport Information

The Li-ion Cylindrical Rechargeable Battery as stated in Appendix is made in compliance to the requirements stated in the latest edition of the IATA Dangerous Goods Regulations Packing Instruction 967 section II such that they can be transported as a NOT RESTRICTED (non-hazardous/non-dangerous) goods. However, if those Li-Ion batteries are packed individually or packed with 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 either Packing Instruction section I B of 965 or section II of 966.

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

- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing instruction 967 section II (2017-2018 Edition).
- The International Air transport Association (IATA) Dangerous Goods Regulations, Packing instruction 967 section II (58th Edition, 2017).
- Special provision 188 of the International Maritime Dangerous Goods (IMDG) Code (Amendment 37-14 Edition).
- The US Hazardous Materials Regulation 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, Rev.6.

These 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 Tests and Criteria.

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

Manual of Test and Criteria (38.3 Lithium battery)			
No.	Test items	Test results	Remark
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	
T8	Forced discharge	Pass	

Additional Requirements for air transport:

1. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
2. Cells and batteries must be manufactured under a quality management program.
3. The Watt-hour rating must be marked on the outside of the battery case except those manufactured before 1 January 2009.
4. Cells and batteries must be packed in inner packagings that completely enclose the cell or battery. To provide protection from damage or compression to the batteries, the inner packagings must be placed in a strong rigid outer packaging of one of the packaging types shown below.
5. Each consignment must be accompanied with a document with an indication that:
 - the package contains lithium ion cells or batteries;
 - the package must be handled with care and that a flammability hazard exists if the package is damaged;
 - special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and
 - a telephone number for additional information.
6. Each package must be labelled with a lithium battery handling label (Figure 7.4.H).
7. A Shipper's Declaration for Dangerous Goods is not required.
8. Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.
9. Maximum net quantity of lithium ion cells must not be more than 5 kg.
10. Equipment must be equipped with an effective means of preventing accidental activation.
11. The equipment containing the cells or batteries must be secured against movement within the outer packaging and be packed so as to prevent accidental operation during air transport.
12. The equipment must be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the cell or battery is afforded equivalent protection by the equipment in which it is contained.
13. Where a consignment includes packages bearing the lithium battery handling label, the words "Lithium ion batteries in compliance with Section II of PI 967" must be included on the air waybill, when an air waybill is used. The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.



Section 15 - Regulatory Information

International Inventories

TSCA: Complies

DSL: All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

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

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Cobalt lithium manganese nickel oxide	346417-97-8	55	1.0 0.1
Aluminum foil	7429-90-5	5	1.0
Copper	7440-50-8	5	1.0

SARA 311/312 Hazard Categories

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

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8		X	X	
Cobalt lithium manganese nickel oxide 346417-97-8		X		

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper	5000 lb		RQ 5000 lb final RQ



7440-50-8			RQ 2270 kg final RQ
Aluminum foil 7429-90-5			

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Cobalt lithium manganese nickel oxide - 346417-97-8	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Lithium nickel cobalt manganese oxide 346417-97-8	X		X	X	X
Ethylene carbonate 96-49-1		X	X		
Copper 7440-50-8	X	X	X	X	X
Aluminum foil 7429-90-5		X		X	

International Regulations**Mexico****National occupational exposure limits**

Component	Carcinogen Status	Exposure Limits
Cobalt lithium manganese nickel oxide 346417-97-8 (55%)		Mexico: TWA 0.2 mg/m ³
Copper 7440-50-8 (5%)		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³
Aluminum foil 7429-90-5 (5%)		Mexico: TWA= 10 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada**WHMIS Hazard Class**

Non-controlled

Section 16 - Other Information

NFPA	Health Hazards 1	Flammability 0	Instability 0	Physical and Chemical Hazards -
HMIS	Health Hazards 0	Flammability 0	Physical Hazard 0	



				Personal Protection X
--	--	--	--	------------------------------

Revision Date: 4-December-2017

Revision Note: No information available

Disclaimer

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

--End of Safety Data Sheet--