MSDS Report

Prepared For :	Shenzhen Vigor Power Battery Co., Ltd 3rd Floor No. 1 Building Yongfa Industrial Zone, Yanchuanchaoyang Road, Songgang Town Baoan District, Shenzhen China
Product Name:	Lithium Polymer Battery
Model :	18650
Nominal Voltage:	3.7V
Typical Capacity:	1600mAh, 5.92Wh
Weight:	46.5g
Dimension :	67mm×45.4mm×20.3mm (L×W×T)
Prepared By :	Shenzhen TCT Testing Technology Co., Ltd. 1F, No.1 Building, No.1 Chongqing Road, Yibaolai Industrial Park,Qiaotou Village, Fuyong Town, Baoan District, Shenzhen
Report No.:	TCT170216M016

Written by: Jessi Dai Approved by:

Inspected by: Allen Qin Date: 2017.02.24

Material Safety Data Sheet

Section 1- Chemical Product & Company Identification

Product Name: Lithium Polymer Battery

Manufacture: Shenzhen Vigor Power Battery Co., Ltd

Address: 3rd Floor No. 1 Building Yongfa Industrial Zone, Yanchuanchaoyang Road, Songgang Town Baoan District, Shenzhen China

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Item Code: **TCT170216M016**

Section 2- Hazards Identification

Classification of Danger	See section 14
Primary Route(s) of Exposure	Eye, skin contact, ingestion
Health Hazard	The batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's risk of rupture, fire, heat, leakage of internal components, with could cause casualty loss. Abuses include but not limited to the following cases: charged for long time, short circuited, put into fire, whacked with hard object, punctured with acute object, crushed, and broken.
Reported as carcinogen	Not applicable

Section 3- Composition/Information on Ingredients

Hazardous Ingredients (Chemical Name)	*Concentration or concentration ranges (%)*	*CAS Number*
Lithium Cobalt Oxide ($CoLiO_2$)	15-40	12190-79-3
Graphite	10-30	7782-42-5
Phosphate(1-), hexafluoro-, lithium	10-30	21324-40-3
Copper	7-13	7440-50-8
Aluminum foil	5-10	7429-90-5
Nickel	1-5	7440-02-0

Labeling according to EC directives.
No symbol and risk phrase are required.
Note: CAS number is Chemical Abstract Service Registry Number.
N/A=Not apply.

Section 4- First Aid Measures

Eye	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
Inhalation	Remove from exposure and move to fresh air immediately. Use oxygen if available.
Ingestion	Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

Section 5- Fire Fighting Measures

Characteristics of Hazard	Toxic fumes; gases or vapors may evolve on burning.
Hazardous Combustion Products	Carbon monoxide, carbon dioxide, lithium oxide fumes.
Fire-extinguishing Methods and Extinguishing Media	Water, CO_2. Don't use Halon fire extinguisher. May use dry powder, sand, earth.
Attention in Fire-extinguishing	The Firemen should put on antigas masks and full fire-fighting suits.

Section 6- Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7- Handling and Storage

Handling	Don’t handing the batteries in manner that allows terminals to short circuit
Storage	Store and used far away from heat, sparks, open flame, or other heat ignition sources, and under room temperature(<30℃) in ventilating and dehumidifying environments.
Other Precautions	The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Section 8 - Exposure Controls/Personal Protection

Engineering Controls	No engineering controls are required for handling batteries that have not been damaged. Personal protective equipments for damaged batteries should include chemical resistant gloves and safety glasses.
Personal Protective Equipment	Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. Not necessary under conditions of normal use. Protective Gloves: Not necessary under conditions of normal use.

	Other Protective Clothing or Equipment: Not necessary under conditions of normal use. Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

Section 9- Physical and Chemical Properties

Physical State	Appearance: Square
	Color: Red
	Odour: If leaking, smells of medical ether.
Change in condition:	
pH	Not applicable as supplied.
Flash Point	Not applicable unless individual components exposed.
Flammability	Not applicable unless individual components exposed.
Relative density:	Not applicable unless individual components exposed.
Solubility (water)	Not applicable unless individual components exposed.
Solubility (other)	Not applicable unless individual components exposed.

Section 10 – Stability and Reactivity

Stability	Stable under normal temperatures and pressures.
Conditions to Avoid	Heat above 70°C or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.
Hazardous Decomposition Products	Toxic Fumes, and may form peroxides.
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.	

Section 11 – Toxicological Information

Irritation	In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

Sensitization	Not Available
Reproductive Toxicity	Not Available
Toxicologically Synergistic Materials	Not Available

Section 12-Ecological Information

General note:	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity	Not Available

Section 13 – Disposal Considerations

Waste Treatment	Recycle or dispose of in accordance with government, stat & local regulations.
Attention for Waste Treatment	Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

Section 14 – Transport Information

UN number	3480
UN Proper shipping name	Lithium ion Batteries (limited to a maximum of 30% SoC)
Transport hazard class(es)	9
Marine pollutant (Yes/No)	No
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	

Transport information:

The goods can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 965 Section II/Section IB appropriate of IATA DGR 58th (2017 Edition) for transportation.

According to the special provision188 of IMDG CODE (Amdt. 38-16) 2016 Edition, the products are not subject to dangerous goods.

Other requirements for the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.

Separate batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport.

More information concerning shipping, testing, marking and packaging can be obtained from label master at http://www.labelmaster.com/.

Transport Fashion: By air, by sea, by railway, by road.

Section 15 – Regulatory Information

Law information

《Dangerous Goods Regulations》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods 》

《Occupational Safety and Health Act 》(OSHA)

《Toxic Substance Control Act》(TSCA)

《Consumer Product Safety Act 》(CPSA)

《Federal Environmental Pollution Control Act》(FEPCA)

《The Oil Pollution Act》(OPA)

《Superfund Amendments and Reauthorization Act TitleⅢ(302/311/312/313) 》(SARA)

《Resource Conservation and Recovery Act》(RCRA)

《Safety Drinking Water Act》(CWA)

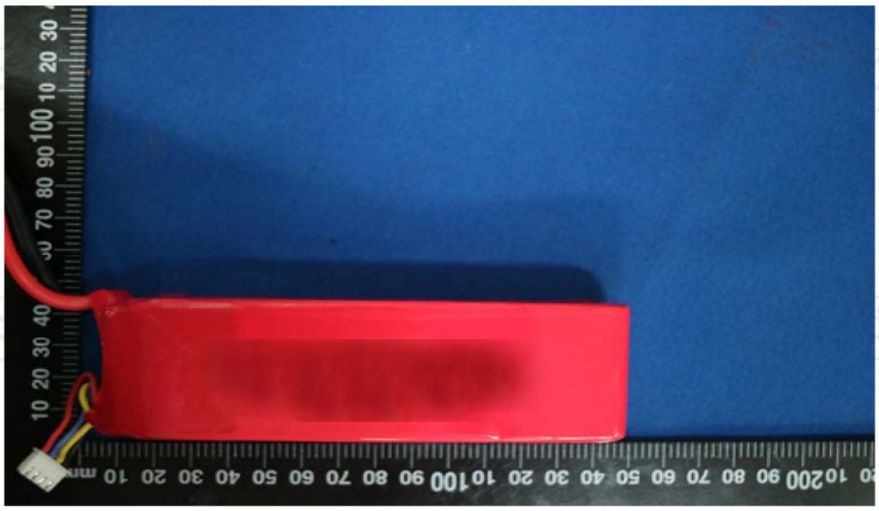
《California Proposition 65》

《Code of Federal Regulations》(CFR)

In accordance with all Federal, State and local laws

Section 16 – Additional Information

MSDS creation date: 2017/02 Version: 1.0



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The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

******End of report******

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