Material Safety Data Sheet

Product: Li-ion Battery

Model/type reference: BT230

Nominal Voltage: 3.7V

Rated Capacity: 2000mAh (7.4Wh)

Report No: PN20220119118101

Effective date: 2022-01-19

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Section 1- Chemical Product and Company Identification

Product Identification: Li-ion Battery Model No.: BT230 Manufacturer's / Supplier Name: DONGGUAN CHY BATTERY TECHNOLOGY CO., LTD Address: No.2, Qinghe Road, Huang Jing Keng Village, Huangjiang Town, Dongguan City, Guangdong Province. China. Telephone number of the supplier: +86-13427920995 Emergency Telephone No. (24h): +86-13427920995 Fax: None E-mail address: lixintang@aisun-power.com Referenced documents: ISO 11014:2009 Safety data sheet for chemical products Version number: V1.0

Section 2 – Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred the Li-ion Battery ingredients contained within or their ingredients products could be harmful.	
Apperance, Color, and Odor	Solid object with no odor, no color.	
Primary Route(s)	These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if	
of Exposure	the cell is mechanically, thermally or electrically 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	ACUTE (short term): see Section 8 for exposure controls In the event that this battery	
Effects:	has been ruptured, the electrolyte solution contained within the battery would be	
	corrosive and can cause burns.	
	Inhalation: Inhalation of materials from a sealed battery is not an expected route of	
	exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.	
	Ingestion: Swallowing of materials from a sealed battery is not an expected route of	
	exposure. Swallowing the contents of an open battery can cause serious chemical	
	burns of mouth, esophagus, and gastrointestinal tract.	
	Skin: Contact between the battery and skin will not cause any harm. Skin contact with	
	contents of an open battery can cause severe irritation or burns to the skin. Eye:	
	Contact between the battery and the eye will not cause any harm. Eye contact with	
	contents of an open battery can cause severe irritation or burns to the eye. CHRONIC	
	(long term): see Section 11 for additional toxicological data	
Medical Conditions Aggravated by Exposure	Not applicable	
Reported as carcinogen	Not applicable	

Section 3 – Composition/Information on Ingredients

Li-ion Battery is a mixture.

Hazardous Ingredients (Chemical	Concentration or	CAS Number
Name) Cobalt lithium manganese nickel	concentration ranges (%)	182442-95-1
oxide	20~00	102442-95-1
Graphite	15~20	7782-42-5
PVDF	1~5	24937-79-9
Carbon black	0.5~3	1333-86-4
Aluminum	21~23	7429-90-5
Copper	10~11	7440-50-8
Ethyl methyl carbonate	3~5	623-53-0
Lithium hexafluorophosphate	7~10	21324-40-3

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not applicable.

Section 4 – First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move	
	victim to fresh air. Obtain medical advice.	
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove	
	contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently	
	flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention.	
	Completely decontaminate clothing, shoes and leather goods before reuse or discard.	
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the	
	contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while	
	holding the eyelids open. Neutral saline solution may be used as soon as it is available. If	
	necessary, continue flushing during transport to emergency care facility. Take care not to	
	rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to	
	an emergency care facility.	
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is	
	rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth	
	thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8	
	oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of	
	aspiration. Have victim rinse mouth with water again. Quickly transport victim to an	
	emergency care facility.	

Section 5 – Fire-fighting Measures

Flammable	In the event that this battery has been ruptured, the electrolyte solution contain within the
Properties	battery would be flammable. Like any sealed container, battery cells may rupture when
	exposed to excessive heat; this could result in the release of flammable or corrosive
	materials.

NFPA	Health: 0 Flammability: 0 Instability: 0	
for firefighters		
precautions	self-contained breathing apparatus (SCBA) with full protective gear.	
and	from a protected location or a safe distance. Use NIOSH/MSHA approved full-face	
Equipment	pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire	
Protective	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a	
the chemical		
arising from	mixture. In this situation, smothering agents are recommended to extinguish the fire	
Hazards	hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive	
Specific	Fires involving Li-ion Battery are controlled with water. When water is used, however,	
Data	Sensitivity to Static Discharge: Not Applicable	
Explosion	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases	
Media		
extinguishing	Not available	
Unsuitable		
Media		
extinguishing	Use extinguishing media suitable for the materials that are burning.	
Suitable		

Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and	Restrict access to area until completion of clean-up.
emergency procedures	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 handle Li-ion Battery with metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.
	Prevent formation of dust.
	Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.
Storage	If the Li-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion Battery periodically.
	3 months: -10°C~+40°C, 45 to 85%RH
	And recommended at 0°C~+35°C for long period storage.
	The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.
	Do not store Li-ion Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
	Keep out of reach of children.
	Do not expose Li-ion Battery to heat or fire. Avoid storage in direct sunlight.
	Do not store together with oxidizing and acidic materials.

Section 8 – Exposure Controls and Personal Protection

Engineering Controls	Use local exhaust ventilation or other engineering
	controls to control sources of dust, mist, fumes and
	vapor.
	Keep away from heat and open flame. Store in a cool,
	dry place.
Personal Protective Equipment	Respiratory Protection: Not necessary under normal
	conditions.
	Skin and body Protection: Not necessary under
	normal conditions, Wear neoprene or nitrile rubber
	gloves if handling an open or leaking battery.
	Hand protection: Wear neoprene or natural rubber
	material gloves if handling an open or leaking battery.
	Eye Protection: Not necessary under normal
	conditions, Wear safety glasses if handling an open or
	leaking battery.
Other Protective Equipment	Have a safety shower and eye wash fountain readily
	available in the immediate work area.

Hygiene Measures

Do not eat, drink, or smoke in work area. Maintain good housekeeping.

Section 9 - Physical and Chemical Properties

	Form: Solid	
Physical State	Color: Purple	
	Odor: Odorless	
Change in	condition:	
pH, with inc	dication of the concentration	Not applicable
Melting poi	nt/freezing point	Not available.
Boiling Poir range:	nt, initial boiling point and Boiling	Not available.
Flash Point		Not available.
Upper/lowe	r flammability or explosive limits	Not available.
Vapor Pres	sure:	Not applicable
Vapor Den	sity: (Air = 1)	Not applicable
Density/rela	ative density	Not available.
Solubility in	Water:	Insoluble
n-octanol/w	ater partition coefficient	Not available.
Auto-ignitio	n temperature	130°C
Decomposition temperature		Not available.
Odout threshold		Not available.
Evaporation rate		Not available.
Flammability (soil, gas)		Not available.
Viscosity		Not applicable

Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Li-ion Battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or

	exposed to fire
Possibility of Hazardous Reaction	Not Available

Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically,
	thermally or electrically abused to the point of
	compromising the enclosure. If this occurs, irritation to
	the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

Section 12 - Ecological Information

Water hazard class 1(Self-assessment): slightly
hazardous for water.
Do not allow undiluted product or large quantities of it
to reach ground water, water course or sewage
system.
Not Available
Not Available

Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

Section 13 – Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

Section 14 – Transport Information

The Li-ion Battery (BT230) had passed the UN 38.3 test and is classified as non-dangerous goods and also complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Li-ion Battery.

The Li-ion Battery is transported according to the PACKING INSTRUCTION 967 Section II of IATA DGR 63rd edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, UN No.: UN3481).

However, the Li-ion Battery may also be transported according to the PACKING INSTRUCTION 965 Section I B of IATA DGR 63rd edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES, UN No.: UN3480) or PACKING INSTRUCTION 966 Section II of IATA DGR 63rd edition (Proper shipping name and UN ID number: LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, UN No.: UN3481).

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

Each package must be labeled with a Lithium Battery handling label.

Li-ion batteries treated as "Non-regulated goods" under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.

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

- The International Civil Aviation Organization (ICAO) Technical Instructions (2021-2022 edition).

- The International Air transport Association (IATA) Dangerous Goods Regulations (63rd edition).

- The International Maritime Dangerous Goods (IMDG) Code (Amdt. 40-20).

- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA

- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

Section 15 - Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

_____ Hazardous _____ Non-hazardous

Section 16 - Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, NTEK makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis

that this document contains no export controlled information.