MATERIAL SAFETY DATA SHEET

Li-ion Cylindrical Rechargeable Battery Pack

Model: IBM031NA

Prepared by	Approved by
Li de Rao	Wei Zou
Date: Jan.02, 2021	Date: Jan.02, 2021

i ● 博科能源系统(深圳)有限公司 ICON ENERGY SYSTEM(SHEN ZHEN) CO., LTD

Material Safety Data Sheet

Section 1-Chemical Product and Company Identification

Product Identification

Li-ion Rechargeable Battery

Rated Capacity	: 9600mAh
Norminal Voltage	: 3.7V
Testing Period	: Jan.1, 2021 To Jan.2, 2021

Manufacturer

ICON ENERGY SYSTEM (SHEN ZHEN) CO., LTD

Address: Block A ,4/F, jinmeiwei Industrial Park, Guanlan Hi-tech Industrial Park, Shangkeng

CommunityGuanlan Street ,BaoanDistrict, Shenzhen City, Guangdong Province, P.R.C

contact person	:	Read
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Section 2-Hazards Identification

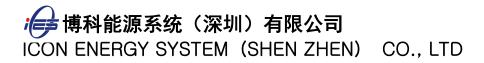
Preparation	Not dangerous with normal use. Do not dismantle, open or shred Li-ion Battery.
hazards and	Exposure to the ingredients contained within or their ingredients products could be harmful.
classification	
Appearance,	Solid object with no odor, no color.
Color, and	
Odor	
Primary	These chemicals are contained in a sealed stainless steel enclosure. Risk of exposure occurs
Route(s) of	only if the cell is mechanically, thermally or electrically abused to the point of
Exposure	compromising the enclosure. If this occurs, exposure to the electrolyte solution contained
	within can occur by Inhalation, Ingestion, Eye contact and Skin contact.

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Potential	ACUTE (short term): see Section 8 for exposure controls In the event that this battery has
Health	been ruptured, the electrolyte solution contained within the battery would be corrosive and
Effects:	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	Not applicable
Conditions	
Aggravated	
by Exposure	
Reported as	Not applicable
carcinogen	

Section & Composition/Information on Ingredients						
Chemical Composition		Molecular Formula	Weight%	CAS No	OSHA(PEL)	ACGIH(TLV)
Lithium C	obalt Oxide	LiCoO2	35~38%	12190-79-3	N/A	N/A
Graphit	e powder	С	23~25%	7782-42-5	N/A	N/A
Elec	trolyte	LiPF6	12~15%	21324-40-3	N/A	N/A
Laminated a	luminum film	Al	0.5~1%	7429-90-5	N/A	N/A
Alumi	num foil	Al	2~6%	7429-90-5	N/A	N/A
Copp	per foil	Cu	5~10%	7440-50-8	N/A	N/A
Aluminum	Aluminum	Al	2~3%	7429-90-5	N/A	N/A
tab	Tab Tape	(C3H6) n	1~3%	9003-07-0	N/A	N/A
NI: -11 4 -1	Nickel	Nickel	2~3%	7440-02-0	N/A	N/A
Nickel tab	Tab Tape	(C3H6) n	1~3%	9003-07-0	N/A	N/A
D1 (PET	(C10H8O4)n	0.01%~1.05%	25038-59-9	N/A	N/A
Blue tape acrylic		C5H8O2	0.01%~1.05%	9011-14-7	N/A	N/A
PVDF		(CH ₂ CF ₂) n	0.5~2%	24937-79-9	N/A	N/A
Separator film		(C2H4) n	2~5%	9002-88-4	N/A	N/A
Silicon		Si	1~2%	7440-21-3	N/A	N/A
Epoxy Resin		EP	1.5~2%	38891-59-7	N/A	N/A
G	old	Au	0.2~0.5%	7440-57-5	N/A	N/A
Sn		Sn	0.05~0.1%	7440-31-5	N/A	N/A

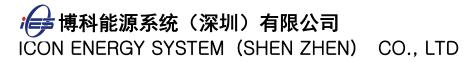
Section 3-Composition/Information on Ingredients



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.
Suitable	Use extinguishing media suitable for the materials that are burning.
extinguishing	
Media	
Unsuitable	Not available
extinguishing	
Media	
Explosion	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases
Data	Sensitivity to Static Discharge: Not Applicable
Specific	Fires involving Li-ion Battery can be controlled with water. When water is used, however,
Hazards	hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture.
arising from	In this situation, smothering agents are recommended to extinguish the fire
the chemical	



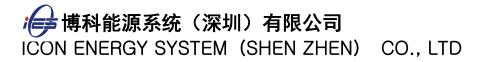
Protective	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a
Equipment	pressure-demand, self-contained breathing apparatus and full protective gear.
and	Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved
precautions	full-face self-contained breathing apparatus(SCBA) with full protective gear.
for firefighters	
NFPA	Health: 0 Flammability: 0 Instability: 0

Personal Precautions, protective	Restrict access to area until completion of
equipment, and	clean-up. Do not touch t
emergency procedures	he 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	Stop the leak if safe to do so. Contain the spilled liquid with dry
Containment	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 6-Accidental Release Measures

Section 7-Handling and Storage

Handling	Don't handling 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 are 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 $^{\circ}$ C ~+40 $^{\circ}$ C , 45 to 85%RH And recommended at 0 $^{\circ}$ C ~+35 $^{\circ}$ 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. The voltage
	for a long time storage shall be 3.7V~4.2V range.
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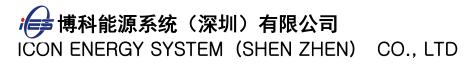
Do not storage Li-ion Battery haphazardly in a box or drawer where they may
short-circuit each other or be short-circuited by other metal objects.
Keep out of reach of children.
Do not expose Li-ion Battery to heat or fire.
Avoid storage in direct sunlight.
Do not store together with oxidizing and acidic materials.

Section 8-Exposure Controls/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

Physical	Form: Solid	
State	Color: White	
	Odour: Monotony	
Change in condit	ion:	
pH, with indication of the concentration		Not applicable
Melting point/freezing point		Not available.
Boiling Point, initial boiling point and Boiling		Not available.
range:		
Flash Point		Not available.



Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative desity	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition 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, shockor vibration)	Do not subject Li-ion Batteryto mechanical shock. Vibration encoutered 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 occu	
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	irritation to the skin, eyes and respiratory tract may
	occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratoaenicitv	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	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 impace/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

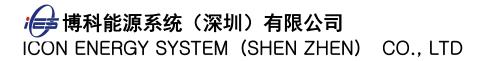
Section 13-Disposal Considerations

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.

The potential effects on the environment and human health of the substances used in batteries and accumulations; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling.

Section 14-Transport Information

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This report applies to by sea, by air and by land;

The Li-ion Battery tested according to the requirements of the 6th revised edition of the UN manual of tests and Criteria, Part III, subsection 38.3;

Lithium ion battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The Li-polymer Rechargeable Battery (IBM031NA) according to Section II/IA/IB of PACKING INSTRUCTION 965/966/967 of the 2021 IATA Dangerous Goods regulations 62nd Edition may be transported and applicable U.S.DOT regulations for the safe transport of Li-ion Battery.

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

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

The package must be handled with care and that a flammability hazard exists if the package is damaged; Each package must be labeled with a Li-ion Battery handling label or in addition to the Class 9 hazard label. With regard to transport, the following regulations are cited and considered:

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

- The International Air transport Association (IATA) Dangerous Goods Regulations. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous;

Marine pollutant (Y/N): N;

- The International Maritime Dangerous Goods (IMDG) Code.

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous; Marine pollutant (Y/N): N;

Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

- 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

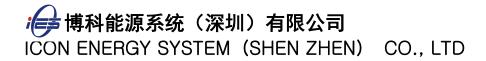
OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous

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Section	16-Other	Information
Scenon		11101 mation

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