

MATERIAL SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Lithium Ion battery Swing 14.8V/5.3Ah 4S1P Li-ION

Part number: 00636.BP2-7023-C

Watt-hour rating: 78Wh

Net weight of the battery: 0,432 kg

Relevant identified uses of the substance or mixture and uses

Lithium Ion Battery

Details of the supplier of the safety data sheet

BTO Ltd. Fabryczna 25 90-341 Lodz Poland

tel.:+48 672 42 02

fax:+48 42 672 47 87

e-mail: bto@bto.pl

website: www.bto.pl

Emergency telephone number

Emergency services: 112 (European number)

Product manufacturer: +48 42 672 42 02

SECTION 2: Hazards identification

Classification of the substance or mixture

According to Regulation (EC) 1272/2008 (CLP) the product is not classified as dangerous

Label elements

According to Regulation (EC) 1272/2008 (CLP) the product does not require labeling

Other hazards

The lithium-ion batteries described in this safety data sheet are sealed products that do not pose a hazard if used in accordance with the manufacturer's instructions. The battery components are contained in a hermetically sealed metal container, which under normal conditions of use are resistant to the internal temperature and pressure created. For the battery cell, chemical materials are stored in a hermetically sealed metal or metal laminated plastic case, designed to withstand temperatures and pressures encountered during normal use.

As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous material's leakage. However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery case will be breached at the extreme, hazardous materials may be released. Moreover, if heated strongly by the surrounding fire, acrid gas may be emitted.

Most important hazard and effects

Human health effects:

Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.

Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and stimulation on the skin.

Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.

Environmental effects: Since a battery remains in the environment, do not throw out it into the environment.

Specific hazards:

If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride. Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

SECTION 3: Composition/information on ingredients

Substances

Not applicable

Mixtures

Lithium Ion battery SWING 14.8V/5.3Ah 4S1P Li-ION 78Wh 00636.BP2-7023-C that consists of 4 cells

Hazardous ingredients of each cell:

Chemical Ingredients	Weight %	CAS Number
Complex Lithium Nickel Oxide	20-50	Similar chemical properties to 113066-89-0; 34631797-8; 193214-24-3
Polyvinylidene Fluoride (PVDF)	<5	24937-79-9
Graphite	10-30	7782-42-5
Organic Electrolyte Solvent – Proprietary Similar chemical properties to Ethylene Carbonate	10-20	Similar chemical properties to 96-49-1
Electrolyte Salt – Lithium Hexafluorophosphate	1-3	21324-40-3
Aluminum, Nickel, Copper and inert materials	Remainder	Aluminum: 7429-90-5 Nickel: 7440-02-0 Copper: 7440-50-8

SECTION 4: First aid measures

Spilled internal cell materials

Inhalation:

Leave area immediately. Make the victim blow his/her nose, gargle. Seek medical attention if necessary.

Skin contact:

Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately. Seek medical attention if necessary.

Eye contact:

Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and spilled internal cell materials

Ingestion:

Wash mouth with water. Drink milk/water and induce vomiting; seek medical attention.

SECTION 5: Firefighting measures

General Hazard

Cell is not flammable. Combustion products include, but are not limited to hydrogen fluoride, carbon monoxide and carbon dioxide

Suitable extinguishing media:

Use extinguishing media suitable for the materials that are burning. Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.

Specific hazards:

Corrosive gas may be emitted during fire. If possible, remove cell from fire fighting area. If heated above 150°C, cell may explode.

Specific methods of fire-fighting:

When the battery burns with other combustibles simultaneously, take fireextinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.

Special protective equipment for firefighters:

Respiratory protection:	Respiratory equipment of a gas cylinder style or protection-against-dust mask
Hand protection:	Protective gloves
Eye protection:	Goggle or protective glasses

SECTION 6: Accidental release measures

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

Precautions for human body:

Remove spilled materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.

Environmental precautions:

Do not throw out into the environment.

On land: place material into suitable containers and call local fire/police department.

In water: if possible, remove from water and call local fire/police department.

Method of cleaning up:

The spilled solids are put into a container. The leaked place is wiped off with dry cloth.

Prevention of secondary hazards:

Avoid re-scattering. Do not bring the collected materials close to fire.

SECTION 7: Handling and storage

Handling suggestions

Do not connect the positive terminal to the negative terminal with electrical wire or chain.

Avoid polarity reverse connection when installing the battery to an instrument.

Do not wet the battery with water, seawater, drink or acid; or expose to strong oxidizer.

Do not damage or remove the external tube.

Keep the battery away from heat and fire.

Do not disassemble or reconstruct the battery; or solder the battery directly.

Do not give a mechanical shock or deform.

Do not use unauthorized charger or other charging method. Terminate charging when the charging process doesn't end within specified time.

Storage

Do not store the battery with metalware, water, seawater, strong acid or strong oxidizer.

Make the charge amount 30-50% then store at room temperature or less (temperature= -20-35 degree C) in a dry (humidity: 45-85%) place. Avoid direct sunlight, high temperature, and high humidity.

Use insulative and adequately strong packaging material to prevent short circuit between positive and negative terminal when the packaging breaks during normal handling. Do not use conductive or easy to break packaging material.

SECTION 8: Exposure controls/personal protection

Control parameters

ACGIH has not been mentioned control parameter of electrolyte.

Keep away from heat and open flame. Store in a cool, dry place.

Personal protective equipment

Respiratory protection:	Respirator not required during normal operations. SCBA required in the event of a fire. Respirator with air cylinder, dust mask
Hand protection:	Not required for handling of batteries in normal conditions. Otherwise use protective gloves
Eye protection:	Not required beyond safety practices of employer. In abnormal situation use goggles or protective glasses designed to protect against liquid splashes
Skin and body protection:	Working clothes with long sleeve and long trousers. Steel toed shoes recommended for large container handling.

SECTION 9: Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Prismatic
Color:	White or White/Yellow or Green/Black
Odor:	No odor
pH	N/A
Vapor pressure:	N/A
Vapor density:	N/A
Boiling point:	N/A
Solubility in water:	Insoluble
Specific gravity:	N/A
Density:	N/A

SECTION 10: Stability and reactivity

Stability:	Stable under normal use
Incompatibilities:	None during normal operation. Avoid exposure to heat, open flame and corrosives.
Hazardous reactions occurring under specific conditions	
Conditions to avoid:	When a battery is exposed to an external short-circuit, crushes, deformation, high temperature above 100 degree C, it will be the cause of heat generation and ignition. Direct sunlight and high humidity.
Materials to avoid:	Conductive materials, water, seawater, strong oxidizers and strong acids.
Hazardous decomposition products:	
None during normal operating conditions.	
If batteries are opened or damaged, hydrogen fluoride and carbon monoxide may be released. Acrid or harmful gas is emitted during fire.	

SECTION 11: Toxicological information

This product does not elicit toxicological properties during routine handling and use.

Sensitization	Teratogenicity	Reproductive Toxicity	Acute Toxicity
NO	NO	NO	NO

If cells are opened through misuse or damage, discard immediately according to all federal, state and local regulations. Internal components of cell are irritants and sensitizers.

Organic Electrolyte

Acute toxicity: LD₅₀, oral - Rat 2,000mg/kg or more

Irritating nature: Irritative to skin and eye

SECTION 12: Ecological information

Persistence/degradability:

Since a battery and the internal materials remain in the environment, do not bury or throw out into the environment. Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

SECTION 13: Disposal considerations

Recommended methods for safe and environmentally preferred disposal:

Product (waste from residues)

Specified collection or disposal of lithium ion battery is required by the law like as "battery control law" in several nations. Collection or recycle of the battery is mainly imposed on battery's manufacturer or importer in the nations recycle is required.




Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

SECTION 14: Transport information

Batteries are of the type proved to meet the testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3.




UN3480 LITHIUM ION BATTERIES (including lithium ion polymer batteries)

	ADR	IMDG	IATA
UN number:	3480	3480	3480
Proper shipping name:	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class:	9*	9*	9*
Labels:	9A 	9A 	9A 
Packing group:	SP188	SP188	Packing instruction 965 section IB or II
Environmental hazards:	Not applicable	Not applicable	Not applicable
Special precautions for user:	No data	No data	No data
Transport in bulk according to Annex II of Marpol and the IBC Code:	No data	No data	No data

Additional information:

*Although this product meets of "danger goods" and are classified as "lithium ion batteries", depending on the battery's total capacity in the packing, etc., they may not be subject to the fully regulated provisions.

UN3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)

	ADR	IMDG	IATA
UN number:	3481	3481	3481
Proper shipping name:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
Transport hazard class:	9*	9*	9*
Labels:	9A 	9A 	9A 
Packing group:	SP188	SP188	Packing instruction 966 or 967 as appropriate
Environmental hazards:	Not applicable	Not applicable	Not applicable
Special precautions for user:	No data	No data	No data
Transport in bulk according to Annex II of Marpol and the IBC Code:	No data	No data	No data

Additional information:

*Although this product meets of "danger goods" and are classified as "lithium ion batteries", depending on the battery's total capacity in the packing, etc., they may not be subject to the fully regulated provisions.

SECTION 15: Regulatory information

COMMISSION REGULATION (EU) No 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

European Agreement concerning the International Carriage of Dangerous Goods by Road ADR applicable as from 1 January 2019 (ADR)

IATA Dangerous Goods Regulations, 61th Edition, 2020;

IMDG Code 2018 Edition (Amendment 39-18)

SECTION 16: Other information

The information in the card is intended to describe the product only from the point of safety requirements. The information provided in the Safety Data Sheet is based on the current state of the art and experience. However, they do not constitute a guarantee of the product's properties or quality specifications and may not be grounds for complaint. The product should be transported, stored and used in accordance with applicable laws and good work practices. The user is responsible for creating the conditions for the safe use of the product and is responsible for the consequences resulting from the misuse of this product. The supplier

of the safety data sheet shall not be liable for any loss resulting directly or indirectly from the application of the above interpretation of the regulations or instructions.

The information contained in the safety data sheet on batteries is based on the information in the safety data sheet for cells.

Lithium cells or batteries Test Summary in accordance with sub-section 38.3 of Manual Of Tests And Criteria

Test Completion Date: 06.09.2016
Product Manufacturer: BTO Sp. z o.o.
Ul. Fabryczna 25
90-341 Lodz Poland

This product lithium ion battery have been succesfully tested and comply with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3

UN Test Paragraph		Performed Tests	Results
38.3.4.1.2	T1	Altitude Simulation	Pass
38.3.4.2.2	T2	Thermal Test	Pass
38.3.4.3.2	T3	Vibration	Pass
38.3.4.4.2	T4	Shock	Pass
38.3.4.5.2	T5	External Short Circuit	Pass
38.3.4.7.2	T7	Overcharge	Pass