(Material) Safety Data Sheet (SDS/MSDS)

according to 1907/2006/EC, Article 31

**Issue date: 13-10-2018	Revision no.: 1	Revision date 12-10-2018

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Section 1 - Identification

Product Name and description
Trade name: Lithium ion Battery / Lithium ion battery pack
Model: 4S1P 18650 model battery pack containing BMS protection circuitry with capacity less than or equal to 3Ahr
Nominal Voltage: 14.4V or 14.8V

Supplier & Manufacturer

Supplier:	**Manufacturer:**
Office address:	**Office address:**
Hunter Douglas Europe B.V.	Shengzhou BAK Battery Co., Ltd.
Piekstraat 2	LiuQiao Village, Zheng An town, Zhongmou county
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Contact details	**Contact Details**
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Section 2 - Hazards Identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
In accordance with article 3 (3) of REACH, this / these item(s) are articles. An article is not subject to the mandatory marking regulations applicable to dangerous substances.
The product is not classified as hazardous to health or environment according to the CLP regulation.

Lithium ion cells are not hazardous when used according to the instructions of the manufacturer under normal conditions.
In case of abuse, there is a risk of rupture, fire, heat, or leakage of internal components which could release hazardous materials.

Section 3 - Composition/Information on Ingredients(1)

Chemical name	Molecular formula	CAS No.	Classification （approxi
Lithium transition metal oxide(2,3)	Li_xMO_2	proprietary	37.3%
Carbon (graphite)	C	7782-42-5	21.0%
Aluminum	Al	7429-90-5	3.27%
Copper	Cu	7440-50-8	7.69%
Steel can	Fe	7439-89-6	13.53%
Electrolyte (3)		proprietary	10.67%

Notes:
(1) Not every product contains all of these materials
(2) M means a combination of Co, Ni or Mn. This component may consist of a mixture of compounds, each of which may contain these elements.
(3) Mixted materials like Lithium transition metal oxide and Electrolyte Do not have CAS No.

Section 4 - First-aid Measures

Lithium ion cells are not hazardous under normal circumstances. In case of fire or rupture, the leakage of internal hazardous substance and formation of hazardous substance may occur, the following measures should be taken in case of contact with these:
Eyes: Check for and remove any contact lenses. Immediately flush with plenty of clean water for at least 15 minutes, seek medical assistance.
Skin: Immediately flush with plenty of clean water for 15 minutes; seek medical assistance if reaction is severe.
Inhalation: Expose the person to fresh air immediately, use respitory device if necessary.Seek medical assistance, and ventilate the contaminated area.
Ingestion: Rinse mouth with clean water immediately. Make the victim vomit and seek medical assistance.

Section 5 - Fire-Fighting Measures

Combustion products and decomposition products include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.
Extinguishing media:

- Dry chemical or water type extinguishers are most effective means to extinguish a battery fire.
- A carbon dioxide (C02) extinguisher is also effective
- cover with sand or dry earth.

Special fire fighting procedures:

- *Respiratory protection:* in all fire situations, wear self-contained breathing apparatus (SCBA) and Chemical apron.
- *Skin protection:* Wear Full fire fighting protective clothing and equipment to prevvent body contact with electrolyte solution
- *Eye protection:* Safety glasses are recommended.

During water application caution is advised as burning pieces of flammable particles may be ejected from the fire.

Causes of unuasual fire or explosion hazard: Batteries that are damaged, opened or expxosed to excessive heat/fire may flame or leak potentially hazardous organic vapors. Combustion products and decomposition products include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

Section 6 - Accidental Release Measures

Under normal condition of use, a battery is hermetically sealed and not hazardous. Leakage or release of hazardous materials contained within a battery would be possible under abbusive conditions.
When leakage of cells happens, liquid could be absorbed with sands, earth or other inert substance, and the contaminated area should be ventilated. Always use protective clothing and equipment when handling damaged batteries.

Section 7 - Handling and storage

Handling precautions:
Do not short positive and negative terminals by contact with conductors. Do not overheat or incinerate. Do not open/ disassemble, puncture, crush or deform battery or cells. Do not bypass any safety circuitry.
Batteries are designed to be recharged. However improperly charging a battery may cause the product to flame or leak. use only appoved chargers and procedures.

Sorage precautions:
Batteries should be seperated from other materials and stored in a non-combustible, well ventilated structure with sufficient clearance between walls and battery stacks.
Store and use away from heat, sparks, open flame, or any other ignition source. Store in a cool, dry environment (less than 35°C, less than 85% RH).
Long term storage temperature/humidity: -20°C~25°C / 0~90% RH (non condensing).

Section 8 - Exposure Controls/Personal Protection

There is no protection required under normal conditions. In case of leakage ventilation is required. Respirator, eye protection, protective gloves and protective clothes are required when dealing with fire and leakage.

Section 9 - Physical and Chemical Properties

Appearance: Cilindrical / cuboid;
Form: Solid;
Color: Various;
Odor[4]: Odorless, unless individual components exposed;
pH: Not applicable;
Flash point: Not applicable;
Flammability: Not applicable;
Vapor pressure: Not applicable;
Solubility (water)[1]: Insoluble, unless individual components exposed;

Note[4]: The following points are not applicable unless in case of leaking or damaged batteries with exposed internal components.

Section 10 - Stability and Reactivity

Stability:	The batteries are stable under normal operating and storage conditions
Conditions to avoid:	Heat above 70° or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble. Short circuit. Exposure to humid conditions over a long period.
Materials to avoid:	Water, strong Acid or Alkali solutions, oxidizing agents.
Hazardous decomposition products:	organic carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

Section 11 - Toxicological Information

Batteries are not hazardous when used properly.
In case of fire or leakage combustion and decomposition products may cause irritation and toxicity to skin, eye and respiratory systems. Toxicity data of some substance is listed, *Hydrogen fluoride:*
Extremely toxic, May be fatal if inhaled or ingested. Readily absorbed through the skin contact may be fatal.
Possible mutagen. LCLO: 50 ppm/30m (human beings) LC50： 1276 ppm/1h （rats).
Carbon and graphite:
Slightly hazards in case of skin contact (irritant), ingestion, inhalation, which will cause chronic damage to upper respiratory tract and cardiovascular system.
Copper:
Dust may cause respiratory irritation. LD50: 3.5 mg kg-1 (mouse).

Section 12 - Ecological Information

There is no influence on ecology or environment when used and disposed of properly (according local law).
Do not let internal components enter marine environment. Avoid releasing to water ways, waste water or ground water.

Section 13 - Disposal Considerations

Discarded cells should not be treated as ordinary trash. Recycling is recommended and is required by law. Requirements can vary on national, state/provincial and local bases.
Do not incinerate. Leaking or damaged batteries should be treated as chemical waste. Packaging is normally not contaminated by batteries.

Section 14 - Transport information

UN-number: ADR,IMO/ IMDG,IATA	UN3480, UN3481
UN proper shipping name: ADR,IMO/ IMDG,IATA	LITHIUM ION BATTERIES, LITHIUM ION BATTERIES CONTAINED IN OR PACKED WITH EQUIPMENT
Transport hazard class: ADR,IMO/IMDG,IATA	9 Miscellaneous dangerous substances and articles
Packing group	II
Environmental hazards: Marine pollutant:	No
Special precautions for user	Warning: Miscellaneous dangerous substances and articles.
Transport in bulk according to Annex II of MARPOL and the IBC Code	Not applicable
Transport/Additional information:	Lithium-ion batteries are tested in accordance with: UN manual of Tests and Criteria, Part III, subsection 38.3
Air: IATA	Packing instruction 965 Section IB applies to lithium ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities that do not exceed the allowance permitted in Section II, Table 965-IB; (**CAO** Net quantity per package 10kg)
Road & Sea: ADR,IMO/ IMDG	They meet the requirements of special provision SP188

Section 15 - Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

- *National regulations*
- *Other regulations, limitations and prohibitive regulations*
- *Substances of very high concern (SVHC) according to REACH, Article 57:* None

Chemical safety assessment: not required

Section 16 - Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases
H228 Flammable solid.
H251 Self-heating: may catch fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H350i May cause cancer by inhalation.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.

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