



# MSDS

Report No.: SHBST1705813770001YRR-4

Date: May 03, 2021

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## Material Safety Data Sheets

### Section 1 - Product and Company Identification

**Product Identification:** Rechargeable lithium battery pack

**Supplier Name:** SHANGHAI BAO E INDUSTRIAL CO., LTD.

**Supplier Address:** Shanghai Baoshan Iron Peak Road 477 Baolin Electric A

**Sample Model:** 25.9V-5.2AH

**Contact Person:** Mr.Hu

**Tel.:** 13872191245

**Fax:** 021-36510082

Signed for and on behalf of

**Andy Zheng/Technical Director**

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**Dongguan BST Testing Co., Ltd.**

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### Section 2 – Composition/Information on Ingredients

**Ingredient Name:** Rechargeable lithium battery pack

**The difference between the single product and mixture:** mixture

**Chemical Name:**

**Constitutes:**

| Chemical Name                   | Chemical Formula                                                         | CAS No.    | Content/% |
|---------------------------------|--------------------------------------------------------------------------|------------|-----------|
| Nickel cobalt lithium manganate | $\text{Li}(\text{Ni}_{0.5}\text{Co}_{0.2}\text{Mn}_{0.3})\text{O}_2$     | ----       | 27.4%     |
| Polyvinylidene fluoride         | $(\text{C}_2\text{H}_2\text{F}_2)_n$                                     | 24937-79-9 | 1.5%      |
| Graphite                        | $\text{C}_{24}\text{X}_{12}$                                             | 7782-42-5  | 14.80%    |
| Carboxymethyl cellulose         | $[\text{C}_6\text{H}_7\text{O}_2(\text{OH})_2\text{CH}_2\text{COONa}]_n$ | 9004-32-4  | 0.25%     |
| Styrene-butadiene rubber        | $(\text{C}_8\text{H}_8.\text{C}_4\text{H}_6)_x$                          | 9003-55-8  | 1.3%      |
| Aluminium                       | Al                                                                       | 7429-90-5  | 4.2%      |
| Copper                          | Cu                                                                       | 7440-50-8  | 5.80%     |
| Ethylene carbonate              | $\text{C}_3\text{H}_4\text{O}_3$                                         | 96-49-1    | 2.64%     |
| Dimethyl carbonate              | $\text{C}_3\text{H}_6\text{O}_3$                                         | 616-38-6   | 5.37%     |
| Ethyl methyl carbonate          | $\text{C}_4\text{H}_8\text{O}_3$                                         | 623-53-0   | 5.50%     |
| Lithium hexafluorophosphate     | $\text{LiPF}_6$                                                          | 21324-40-3 | 1.96%     |
| Nickel                          | Ni                                                                       | 7440-02-0  | 1.5%      |
| Polypropylene                   | $(\text{C}_3\text{H}_6)_n$                                               | 9003-07-0  | 1.27%     |
| Polyethylene                    | $(\text{C}_2\text{H}_4)_n$                                               | 9002-88-4  | 1.10%     |
| Iron                            | Fe                                                                       | 7439-89-6  | 25.41%    |

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### Section 3 - Hazards Identification information

**Health Hazards Acute & Chronic:** Acute: Irritation of Eyes, Skin Respirator, Dizziness, Weakness, Nausea, and Headache.

**Signs & Symptoms of Overexposure:**

Eyes: irritation.

Skin: moderate irritation, defeating, dermatitis.

Inhalation: respiratory irritation, effects, dizziness, weakness, nausea, headache

Ingest: irritation, nausea, vomiting & diarrhea.

### Section 4 - First Aid Measures

**First Aid:**

**Eyes:** Flush with plenty of water, Get medical attention.

**Skin:** Wash thoroughly with soap & water.

**Inhalation:** Remove to fresh air, Get medical attention.

**Ingestion:** Do not induce vomiting, Keep warm. Get medical attention.

**The most important symptom and harm effect:** Acid burn.

**The protection to the first aid person:** According to procedure to disposal.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, msha/niosh (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable liquid and vapor.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Flash Point:** 45deg C (113.00 deg F)

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

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**Upper:** Not available.

**NFPA Rating:** Not published.

### Section 6 - Accidental Release Measures

#### Spill Release Procedures:

**Use Proper Personal Protection:** Remove all ignition sources. Use suitable absorbent materials and recover for proper disposal.

### Section 7 - Handling and Storage

**Handling:** Use spark-proof tools and explosion proof equipment. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Use only in a chemical fume hood.

#### Storage:

1. Avoid short circuiting the cell. Avoid mechanical damage of the cell.
2. Keep the Battery fully charged, and charge twice monthly.
3. Store the Battery in a dry and cool plate, away from the sun, rain, and heat.

### Section 8 - Exposure Controls & Personal Protection

#### Respiratory Protection:

**Protective Gloves:** Nitrile rubber.

**Eye Protection:** Chemical splash goggles

**Other Protective Equipment:** Impervious clothing & boots.

**Work Hygienic Practices:** Avoid contact with skin and eyes; do not breathe vapors/mist.

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### Section 9 - Physical & Chemical Properties

**Substance estate:** mixture

**Shape:** solid

**Color:** N/A

**Smell:** thrill smell

**PH value:** N/A

**Boiling point/ boiling point scope:** N/A

**Decomposition temperature:** N/A

**Fire point:** N/A

**Test method:** N/A

**Self-ignite temperature:** Non-combustible

**Explosion limit:** N/A

**Vapor tension:** N/A

**Vapor density:** N/A

**Density:** N/A

**Solubility:** The electrolyte dissoluble in water; and the whole battery isn't dissoluble in water

**Nominal voltage:** 25.9 V

**Rated Capacity:** 5.2AH

### Section 10 - Stability & Reactivity Data

**Form:** Solid

**Color:** silver

**Odor:** Odourless

**Conditions to Avoid:** Incompatible materials, exposure to moist air or water.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, alkali metals, metallic salts.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

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### Section 11 - Toxicological Information

#### Toxicological Information:

N/P

### Section 12 - Ecological Information

#### Ecological Information:

N/P

### Section 13 - Disposal Considerations

#### Waste Disposal Methods:

Dispose Of Collected Material In Accordance With Local, State And Federal Regs.

### Section 14 - Transport Information

All Lithium Battery with the necessary testing requirements under the UN 38.3 Manual of Tests and Criteria as referenced in the following transportation regulations.

1. UN recommendations on the Transport of Dangerous Goods Model Regulations.
2. U.S. Department of Transportation of Dangerous Goods Model Regulations.
3. International Civil Aviation Organization (ICAO) Technical Instructions.
4. International Maritime Dangerous Goods (IMDG) code.
5. IATA DGR 58th Edition [2017].
6. Transport Packing Specification: PI965.

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### DOT regulations:

|                                             |                                                                                                                       |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| UN Classification (Transport Hazard class): | Class 9-Micellaneous Dangerous Goods                                                                                  |
| UN number:                                  | 3480 or 3481                                                                                                          |
| Packing group:                              | II                                                                                                                    |
| UN Proper shipping name(technical name):    | Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment; |
| Marine pollutant(Y/N)                       | Y                                                                                                                     |
| Label:                                      | 9                                                                                                                     |

### Land transport ADR/RID (cross-broder):

|                       |                                                                                                                       |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------|
| ADR/RID class:        | Class 9-Micellaneous Dangerous Goods and articles                                                                     |
| Danger code(Kemler):  | 9                                                                                                                     |
| UN number:            | 3480 or 3481                                                                                                          |
| Packing group:        | II                                                                                                                    |
| Marine pollutant(Y/N) | Y                                                                                                                     |
| Description of goods: | Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment; |

### Sea transport IMDG:

|                        |                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| IMDG Class:            | Class 9-Micellaneous Dangerous Goods;                                                                                 |
| UN Number:             | 3480 or 3481                                                                                                          |
| Label:                 | 9                                                                                                                     |
| Packaging group:       | II                                                                                                                    |
| EMS Number:            | F-A, S-I                                                                                                              |
| Marine pollutant(Y/N): | Y                                                                                                                     |
| Special regulate:      | IMDG 188, 230, 310, 348, 957                                                                                          |
| Proper shipping name:  | Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment; |

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### Air transport ICAO-TI and IATA-DGR:

|                        |                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| UN/ID Number:          | 3480 or 3481                                                                                                          |
| Label:                 | 9                                                                                                                     |
| Packaging group:       | II                                                                                                                    |
| Marine pollutant(Y/N): | N                                                                                                                     |
| Proper shipping name:  | Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment; |

### Section 15 - Regulatory Information

#### LAW Information:

《Dangerous Goods Regulation》

《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》

OSHA Hazard Communication Standard Status.

Toxic Substances Control Act (TSCA) Status.

SARA Title III.

RCRA.

U.S. Federal Regulations.

European/International Regulations.

In accordance with all federal, state and local laws.

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### Section 16 - Other Information

**Other Information:** the above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the result of its use, this information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

BST confirmed the ninth item, the above content as reference information only. Please the user according to the demand to judge it usability. BST has no any responsibility.

\*\*\*END\*\*\*

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