



Material Safety Data Sheet

File No: 2020-03-20

Section 1 - Product and Company Identification

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| Product Name | Energy Storage Module B4850 |
| Battery Type | B4850 |
| Battery Capacity | 50Ah |
| Battery Voltage | 48V |
| Manufacturer | Sealed Performance Batteries (SPB) |
| Address | 1 Ant Road, Yatala, QLD, Australia |
| Post Code | 4207 |
| TEL | 1300 001 772 |
| Emergency Telephone | 1300 001 772 |

Section 2 - Hazard Identification

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| Hazard label (CN) |  <p>GB6944 9th Goods</p> |
| NFPA Rating (USA) |  |
| Other Hazard | <p>These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.</p> |

Section 3 - Composition/Information on ingredients

| Hazardous components | | CAS# | % (by weight) |
|-----------------------|-------------------|------------|---------------|
| LiFePO4 | | 15365-14-7 | 18-27 |
| Carbon | | 7440-44-0 | 7-16 |
| Graphite | | 7782-42-5 | 3-11% |
| Electrolyte | LiPF ₆ | 21324-40-3 | 17-26 |
| | Solvent | / | |
| PVDF | | 24937-79-9 | 3-5 |
| PP | | 9003-07-0 | 2-3 |
| Copper | | 7440-50-8 | 7-14 |
| Aluminum | | 7429-90-5 | 16-25 |
| Nickel | | 7440-02-0 | 0.5-3% |
| Aluminum-Plastic Film | | 7440-50-8 | 5-6 |

Section 4 - First Aid Measures

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| <p>Skin contact</p> | <p>Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes, Seek medical attention immediately.</p> |
| <p>Eye contact</p> | <p>Immediately flush eyes with plenty of water continuously for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention immediately.</p> |
| <p>Inhalation</p> | <p>Cover the victim in a blanket, move to the place of fresh air and keep quiet. Seek medical attention immediately. When dyspnea (breathing difficulty) or asphyxia (breath-hold), give artificial respiration immediately.</p> |

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| Ingestion | Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician. |
| Section 5 - Fire Fighting Measures | |
| Suitable Extinguisher | Dry power, sand, carbon dioxide (CO ₂). |
| Unsuitable Extinguisher | Water, water spray. |
| Specific hazards | Risk of receptacle bursting. |
| Special protective equipment for firefighters | In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. |
| NFPA | Health: 0 Flammability: 1 Instability : 0 |
| Section 6 - Accidental Release Measures | |
| Personal precautions | Remove personnel from area until dissipate. Use personal protective equipment. Avoid contact with skin and eyes. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Do not throw out into the environment. |

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| <p>Methods for cleaning up</p> | <p>Dilute the leaked electrolyte with water and neutralize with diluted sulfuric acid. The leaked solid is moved to a container. The leaked place is fully flushed with water.</p> |
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| <h2>Section 7 - Handling and Storage</h2> | |
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| <p>Handling</p> | <p>Technical measures: Prevention of user exposure; not necessary under normal use. Prevention of fire and explosion: Not necessary under normal use. Precaution for safe handling: Do not damage or remove the external shell. Specific safe handling advice: Never throw out battery in a fire or expose to high temperatures (above 60°C). Do not soak battery in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charge or charge according to the conditions specified by the supplier.</p> |
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| Storage | <p>Storage conditions (suitable to be avoided) Avoid direct sunlight, high temperature, and high humidity. Store in cool place (temperature:-10~45°C, humidity: 45~85%). Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids. Packing material: Insulative and tear-proof, waterproof materials are recommended.</p> |
| Section 8 - Exposure Controls and Person Protection | |
| Engineering controls | Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapor |
| Exposure limits | Airborne exposures to hazardous substances are not expected when product is used for its intended purpose. |
| Eye protection | Not necessary under normal conditions. Wear safety glasses if handling an open or leaking cell. |
| Skin protection | Not necessary under normal conditions. Wear neoprene or nature rubber gloves if handling an open or leaking cell. |
| Hygiene Measures | Do not eat, drink or smoke in work areas. |
| Section 9 - Physical and Chemical Properties | |
| Appearance and odor | N/A |

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| PH | N/A |
| Flash point (°C) | N/A |
| Melting point (°C) | N/A |
| Boiling point (°C) | N/A |
| Relative density (water=1) | N/A |
| Relative Vapour density (air=1) | N/A |
| Vapour pressure (KPa) | N/A |
| Heat of combustion (KJ/mol) | N/A |
| Auto-ignition temperature (°C) | N/A |
| Solubility | Insoluble in water |
| Lower explosive limits % (V/V) | N/A |
| Upper explosive limits % (V/V) | N/A |
| Section 10 - Stability and Reactivity | |
| Stability | Product is stable under storage conditions described in Section 7. |
| Incompatibilities | Strong oxidizing agents, acids. |
| Conditions to avoid | Direct sunlight, high temperature and high humidity. Do not heat above 60°C , incinerate, or expose contents to water. |
| Hazardous Polymerization | Will not occur. |
| Hazardous decomposition | When a battery is heated strongly by the surrounding fire, acrid or harmful fume may be emitted. |
| Section 11 - Toxicological Information | |

None unless internal materials are exposed.
 Toxic information is available on the ingredients noted in section 3, but generally not available to intact batteries as used by customers.
 In case of internal gas released or electrolyte spilled, electrolyte and organic solvents has small toxicity and may cause irritation of skin or eyes. Released gas may also cause irritation of skin of eyes.

Section 12 - Ecological Information

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| Ecological toxicity | No data available. |
| Environmental | Since a battery cell and the internal materials remain in the environment, it can't be degradable. Do not throw out into the environment. |
| Bioaccumulation | No information. |

Section 13 - Disposal Considerations

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| Disposal measures | Do not throw out a used battery cell. Lithium ion cells and batteries can be disposable in accordance with appropriate federal, state and local regulations. However, we recommend recycling, since these cells and batteries contain recyclable material (LiFePO4). |
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Section 14 - Transportation

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| UN Number | UN3480 |
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| PROPER SHIPPING NAME | Lithium Ion Battery |
| Packaging Group | II |
| sea contamination | None |
| Land transport (ADR/RID) | Class 9 |
| Sea transport (IMDG) | Class 9 |
| Air transport (ICAO-TI/IATA DGR) | Class 9 |
| National regulations | National regulations for transport land GB12268 This battery type is classified as dangerous goods for transport, because the watt-hour rating of the battery exceeds 100 Wh. We also declare that this battery type meets the requirements of each test in the UN Manual of tests and Criteria Part III, Subsection 38.3 (ST/SG/AC.10/11/Rev.5) |

Section 15 - Regulatory Information

Major applicable regulations for the transportation of lithium-ion cells and batteries are as

follows:

The UN Model Regulations, United Nations ST/SG/AC.10/1/Rev 16. Recommendations on the Safe Transport of Dangerous Goods

The International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air Transport

The International Air Transport Association (IATA) Dangerous Goods Regulations (57th Edition 2016)

International Maritime Organization (IMO) International Maritime Dangerous Goods Code (IMDG Code) . 01-01 2014

OSHA Hazard communication standard (29 CFR 1910)

Hazardous

Non-hazard

Section 16 - Other Information

The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.

This safety data sheet provider guidance on health, safety and environmental specs of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

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| Company | Sealed Performance Batteries |
| Address/Tel | 1 Ant Road, Yatala, QLD, Australia, 4207 1300 001 772 |
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| Date issued | 2020-03-20 |

The material safety data sheet is furnished to every manufacturer as a reference to secure the safe handling of chemical.

Every manufacturer is requested to carry out appropriate actions for chemical handling as their own responsibility. The supplier makes no warrantee, either express or implied. Concerning of this products, User assumes all risks resulting from its use.