

Freedom Won LiTE Lithium Battery

SAFETY DATA SHEET			
COMPANY DETAILS			
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IMPORTER DETAILS			
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	2154		

1. Chemical Product and Company Identification

Page 1 may be used as an emergency Safety Data Sheet

Trade / Commercial Name: Chemical Name: Chemical Family: Synonyms:	Freedom Won LiTE Lithium Battery Lithium Ion Lithium - Group: 1 Freedom Won LiTE 2 Commercial 100/80 HV Freedom Won LiTE 2 Commercial 200/160 HV Freedom Won LiTE 2 Commercial 230/184 HV+ Freedom Won LiTE 2 Commercial 300/240 HV Freedom Won LiTE 2 Commercial 300/240 HV+ Freedom Won LiTE 2 Commercial 400/320 HV Freedom Won LiTE 2 Commercial 400/320 HV+ Freedom Won LiTE 2 Commercial 500/400 HV Freedom Won LiTE 2 Commercial 500/400 HV+ Freedom Won LiTE 2 Commercial 600/480 HV Freedom Won LiTE 2 Commercial 800/640 HV+ Freedom Won LiTE Commercial 100/80 HV Freedom Won LiTE Commercial 100/80a Freedom Won LiTE Commercial 200/160 HV Freedom Won LiTE Commercial 200/160 Freedom Won LiTE Commercial 230/184 HV+ Freedom Won LiTE Commercial 300/240 HV Freedom Won LiTE Commercial 300/240 HV+ Freedom Won LiTE Commercial 400/320 HV Freedom Won LiTE Commercial 400/320 HV+ Freedom Won LiTE Commercial 500/400 HV
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Freedom Won LiTE Commercial 500/400 HV+
Freedom Won LiTE Commercial 600/480 HV
Freedom Won LiTE Commercial 700/560HV+
Freedom Won LiTE Commercial 700/560HV
Freedom Won LiTE Industrial 800/640 HV+

Freedom Won LiTE Business 40/32 HV
Freedom Won LiTE Business 40/32
Freedom Won LiTE Business 60/48 HV
Freedom Won LiTE Business 60/48
Freedom Won LiTE Business 80/64 HV
Freedom Won LiTE Business 80/64a

Freedom Won eTower 5U Battery - 51.2V - 100AH
Freedom Won LiTE Home 5/4 52V
Freedom Won LiTE Home 10/8 52V
Freedom Won LiTE Home 15/12 52V
Freedom Won LiTE Home 20/16 52V
Freedom Won LiTE Home 30/24 52V

Freedom Won LiTE 2 Home 10/8 52V
Freedom Won LiTE Home 10/8a 52V
Freedom Won LiTE 2 Home 15/12 52V
Freedom Won LiTE Home 15/12 HV
Freedom Won LiTE Home 15/12a 52V
Freedom Won LiTE 2 Home 20/16 52V
Freedom Won LiTE Home 20/16 HV
Freedom Won LiTE Home 20/16a 52V
Freedom Won LiTE 2 Home 30/24 52V
Freedom Won LiTE Home 30/24 HV

Freedom Won LiTE Marine 10/8 13V
Freedom Won LiTE Marine 10/8 26V
Freedom Won LiTE Marine 10/8 52V
Freedom Won LiTE Marine 20/16 13V
Freedom Won LiTE Marine 20/16 26V
Freedom Won LiTE Marine 20/16 52V
Freedom Won LiTE Marine 30/24 13V
Freedom Won LiTE Marine 30/24 26V
Freedom Won LiTE Marine 30/24 52V
Freedom Won LiTE Marine 5/4 13V
Freedom Won LiTE Marine 5/4 26V
Freedom Won LiTE Marine 5/4 52V

Freedom Won megaTower Plus 6modules 4towers HV+ - 885kWh
Freedom Won megaTower Extra 10modules 4towers HVX -
1475Wh

Freedom Won LiFePO4 12V Battery 7.5Ah
Freedom Won LiFePO4 12V Battery 10Ah
Freedom Won LiFePO4 12V Battery 20Ah
Freedom Won LiFePO4 12V Battery 40Ah
Freedom Won LiFePO4 12V Battery 100Ah
Freedom Won LiFePO4 12V Battery 200Ah

UN #: 3481
Hazchem Code: Not required
ERG #: 147
EAC: Not required
CAS #: Not available for mixture
Recommended use of Material: Lithium-ion, Rechargeable, Non-venting cells and batteries.

This Safety Data Sheet covers all lithium-ion rechargeable batteries supplied by Freedom Won.

2. Hazard Identification

GHS Classification of the mixture: No Classification required.

The lithium-ion cell/battery covered in this Safety Data Sheet is hermetically sealed and not hazardous if used as recommended by the manufacturer.

Under a normal condition of use, the electrode materials contained in a cell/battery are non-reactive provided the battery integrity is maintained.

Risk of exposure exists only in case of mechanical, electrical or thermal abuse.

Warning: the cells/batteries should not be punctured, or incinerated, crushed, immersed in water, over-charged, or exposed to a temperature above the declared operation temperature range of the cell or battery.

Should the cell/battery be subjected to a different process or use, such as dismantling for recycling, or destruction, a different safety data sheet would be required. Please contact Freedom Won.

GHS Label Elements

Not Required

Signal Word: Not required

GHS Hazard Statements: Not Required

3. Composition / Information on ingredients

Substance / Mixture: Mixture

Hazardous Components:

PLEASE NOTE: Hazardous components are hermetically sealed in cells and should not cause any exposure if used as directed.

Copper - CAS# 7440-50-8- Concentration <2%

GHS Classification:



Danger

Acute Toxicity Category - 4

Eye damage / irritation Category - 2

Aquatic Acute Category - 1

Aquatic Chronic Category - 1

Diethyl carbonate - CAS# 616-38-6 - Concentration <5%

GHS Classification:



Warning

Flammable liquid Category - 2

Skin Irritation Category - 2

Eye Irritation Category - 2

Single Target Organ Toxicity Category - 3

4. First Aid Measures

In case of battery rupture, major leakage or explosion, evacuate all workers and quarantine the contaminated area. Provide good ventilation to clear out any evacuate fumes, gases or the pungent odour.

Product in Eyes:	Wash immediately with copious amounts of water or isotonic saline solution for 15 minutes. Seek medical attention should irritation persists
Product on Skin:	Wash with copious amounts of water for 15 minutes. Seek medical attention should irritation persists
Product Ingested:	Do not give anything by mouth to an unconscious person. Do <u>not</u> induce vomiting unless instructed by a physician. Keep patient warm and transport to Hospital.
Product Inhaled:	Remove person to fresh air and seek medical attention.

5. Fire Fighting Measures

Extinguishing Media:	A carbon dioxide (CO ₂); Dry chemical powder (DCP).
Specific Hazards:	Cells or batteries that are damaged, opened or exposed to excessive heat/fire may flame or leak potentially hazardous organic vapours.
Protective Clothing:	Full fire protective clothing, including SCBA

6. Accidental Release Measures

Personal Precautions:	Under a 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 abusive conditions.
For non-emergency Personnel:	Rubber gloves must be used to handle all battery components. Avoid inhalation of any vapours that may be emitted.
For first responders:	Same as above
Environmental Precautions:	Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.
Methods for cleaning up:	In the event of battery rupture and leakage: contain the spills and cover the spills or leakage with dry sand or 1:1 mixture of soda ash and slaked lime.

7. Handling and storage

Handling Precautions:	Avoid any contact with the contents in case of rupture, leakage or explosion. Follow the procedures in Section 6 to handle and dispose the spills or waste. Batteries are designed to be recharged. However, improperly charging a cell or battery may cause the product to flame or leak. Use only approved chargers and procedures. Never disassemble a battery or bypass any safety device.
Storage Precautions:	Batteries should be separated from other materials and stored in a non-combustible, well-ventilated structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods. Do not store batteries above 60°C (140°F) or below -20°C (-4°F).

Store batteries in a cool (below 25°C (77°F)), dry area that is subject to little temperature change.
 Ensure that the ex-factory insulation remains on the positive and negative leads of the battery (Red and Black cables) to avoid short circuit.
 Also ensure that the circuit breaker positioned on the face of the battery is in he off (down) position (ex-factory state).

8. Exposure Controls / Personal Protection

Engineering Control Measures: Under conditions of normal use, batteries do not emit hazardous or regulated substances. No engineering controls are required for handling batteries that have not been damaged.

Occupational Exposure Standards
 Occupational Exposure limits: No exposure limits applicable to components in this product

Substance	TWA OEL - RL	ST OEL-RL
Not Applicable	Not Applicable	Not Applicable

Biological exposure indices: Not Applicable

Appropriate engineering controls: No special requirements

Personal Protective Equipment:

Respiratory Protection: SCBA in case of fire

Hand Protection: Chemical resistant gloves (Only in case of leakages)

Eye Protection: Safety Goggles (Only in case of leakages)

Skin and Body Protection: In the event of a fire, SCBA should be worn along with thermally protective outer garments.

Hygiene Measures Wash hands before eating, drinking or smoking.

9. Physical & Chemical Properties

Appearance: Square sealed container - white

Odour: Not Applicable

PH: Not Applicable

Melting Point: Not Applicable

Boiling point: Not Applicable

Auto-ignition: Not Applicable

Bulk Density: Not Applicable

Solubility in Water: Not Applicable

Flash point:	Not Applicable
Upper and lower flammability:	Not Applicable
Vapour pressure:	Not Applicable
Vapour density:	Not Applicable
Relative density:	Not Applicable
Auto ignition temperature:	Not Applicable
Viscosity:	Not Applicable

10. Stability and Reactivity

Reactivity:	Not determined for mixture
Possibility of hazardous reaction:	No hazardous reaction
Incompatible materials:	Water, strong acid or alkalis solutions, oxidizing agents.
Stability:	The batteries are stable under normal operation and storage conditions.
Conditions to avoid:	Short-circuiting, disassembling, heating over the operation temperature range of the product.
Hazardous decomposition Products:	Carbon Monoxide (CO) and other VOC's

11. Toxicological Information

Acute toxicity:	Not Applicable
Skin corrosion/irritation:	Prolonged contact of electrolytes with skin or mucous membranes may cause irritation
Skin Sensitizer:	Not expected to create skin sensitization
Serious eye damage/ irritation:	The electrolytes contained in this cell or battery can irritate eyes with any contact if released.
Inhalation:	Not determined for mixture
Ingestion:	Not determined for mixture
Germ cell mutagenicity:	Information regarding sensitization, carcinogenicity, mutagenicity or reproductive toxicity related to internal cell or battery components has not been included in this document.
Carcinogenicity:	Information regarding sensitization, carcinogenicity, mutagenicity or reproductive toxicity related to internal cell or battery components has not been included in this document.
Reproductive toxicity:	Information regarding sensitization, carcinogenicity, mutagenicity or reproductive toxicity related to internal cell or battery components has not been included in this document.
STOT - single exposure:	Not determined for mixture

STOT – repeated exposure: Not determined for mixture

Aspiration hazard: Not determined for mixture

12. Ecological Information

Ecotoxicology: No ecological impacts expected under normal use conditions. However, cells should not be disposed of in environment and may be recycled

Persistence and degradability: Not determined for mixture

Bio accumulative potential: Not determined for mixture

Mobility in soil: Not determined for mixture

Other: Not determined for mixture

13. Disposal Considerations

Do not dispose in fire or submerge in water.

Battery disposal regulations vary on national, state/provincial and local levels.

Disposal must be conducted in accordance with the applicable laws and regulations.

These batteries contain recyclable materials, and recycling is encouraged over disposal.

14. Transport information

UN Number: 3481(3480 if separate cells as indicated)

UN Proper Shipping Name: "Lithium Ion Batteries Contained in Equipment" (except where cells are shipped separately, which shall classify as "Lithium Ion Batteries")

UN Classification: Class 9

Packing Group: II

Marine Pollutant: No

Regulatory information: Not relevant

Special precautions for user: Use as directed, do not puncture, damage, open or subject to high heat

15. Regulatory Information

- 1) Hazardous Chemical Substances regulations – GNR 1179 –25 August 1995
- 2) ISO 11014: 2009 – Safety Data Sheet for chemical products
- 3) Globalized Harmonised System for classification and labelling of chemicals – Rev 5
- 4) Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): Not Required

16. Other Information

- 1) The safety data sheet contains confidential proprietary information. The information accumulated herein is believed to be accurate at time of Safety Data Sheet design. This information is offered solely for use in evaluation of this product in respect to safety, health and environmental hazards.
- 2) The data in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with other material or in any process. While the opinions expressed herein are those of qualified experts and while Freedom Won believes that the information contained herein is current as of the date of this Safety Data Sheet, Freedom Won does not warrant the accuracy thereof. Since the use of this information and of these opinions and the conditions of use of the product are not within the control of Freedom Won, it is the user's obligation to determine the conditions of safe use of the product.