Safety Data Sheet

Freen-BSL Energy Storage Unit

March 2026

Freen OÜ

SECTION1: IDENTIFICATION

1.1 Product Identifier

PRODUCT NAME:	Freen BSL Energy Storage Unit
PRODUCT TYPE:	Rechargeable sodium-ion battery energy storage system
PICTURE OF THE PRODUCT:	
MANUFACTURER:	Freen OÜ
EMAIL:	support@freen.com
TEL.	+372 5374 1754
ADDRESS:	Arenduse 6, Kohtla-Järve, Estonia, 30326

1.2 Brief description: Indoor stationary sodium-ion battery energy storage (metal enclosure containing sodium-ion cells, battery management system (BMS) and power/communication interfaces)

1.3 Intended use: Stationary electrical energy storage for residential and commercial applications

1.4 Key system data:

Nominal voltage:	48 V
Operating voltage range:	40-60 V
Nominal capacity:	158 Ah
Nominal energy:	7.6 kWh
Max continuous charge/discharge current:	100 A
Max continuous power:	4.8 kW

SECTION 2: HAZARD IDENTIFICATION

The product is a Sodium-ion battery and is therefore classified as an article and is not hazardous when used in accordance with the recommendations of the manufacturer.

Not dangerous with normal use.

Do not dismantle, open or shred the battery.

If the battery is compromised and leaks, the internal materials may be hazardous.

The hazards below are applicable only in case the battery is ruptured

2.1 Hazards may occur only if the battery is:

- Mechanically, electrically, or physically abused/damaged.
- Overheated
- Short-circuited
- Opened or disassembled

2.2 Primary Route(s) of Exposure:

- Inhalation
- Ingestion
- Skin contact
- Eye contact

2.3 Potential health effects:

- **Inhalation**: Vapors or mists from a ruptured battery may cause respiratory irritation
- **Ingestion:** The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.
- **Skin:** Skin contact with contents of an open battery can cause severe irritation or burns to the skin.
- **Eye:** Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

2.4 Hazard statements:

- Harmful if swallowed.
- Causes skin irritation.
- Causes serious eye irritation.
- May cause respiratory irritation.

2.5 Precautionary statements:

2.5.1 Prevention:

- Wash skin and clothing thoroughly after handling
- Avoid breathing dust, fumes, gas, mist, vapors, spray.

2.5.2 Response:

- Get medical advice/attention if you feel unwell.
- IF SWALLOWED: Call a POISON center if you feel unwell.
- IF ON SKIN: Wash with plenty of water
- IF INHALED: Remove affected person to fresh air and keep comfortable for breathing
- IF IN EYES:
  1.Rinse cautiously with water for several minutes.
  2.Remove contact lenses, if present and easy to do.
  3.Continue rinsing.

2.5.3 Storage:

- Store in a well-ventilated place. Keep cool.

2.5.4 Disposal:

- Dispose of contents following directions in Section 13.

2.6 Other hazards:

Exposure to contents of an open or damaged cell or battery: contact with this material will cause burns to the skin, eyes, and mucous membranes.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Representative cell materials:

Chemical Name:	**CAS Number**	**Concentration or concentration ranges (%)**
Sodium nickel-ferro-manganese oxide	N/A	33
Hard Carbon	7782-42-5	22
Sodium hexafluorophosphate	21324-39-0	2.6
Aluminum Foil	7429-90-5	7
Other	N/A	35.4

Note:

CAS number is Chemical Abstract Service Registry Number.

N/A= Not applicable.

All active materials are sealed inside the cell casing.

Exposure occurs only if a cell is ruptured.

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first aid measures

The following first aid measures are required only in case of exposure to interior battery components after damage of the external battery casing.

Undamaged, closed cells do not represent a danger to health.

4.2 Eye contact:

- Rinse cautiously with water for several minutes.
- Remove contact lenses, if present and easy to do.
- Continue rinsing. If signs/ symptoms develop, get medical attention.

4.3 Skin contact:

- Remove contaminated clothing and shoes. Immediately wash with water, soap, and rinse thoroughly for 15 minutes.
- Wash clothing and shoes before reuse.
- If irritation occurs, get medical attention.

4.4 Inhalation:

- Remove affected person to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult.
- Give artificial respiration if necessary with the aid of a pocket mask equipped with one-way valve or another proper respiratory medical device.

4.5 Swallowing:

- Rinse mouth thoroughly with water, do not induce vomiting unless instructed by medical personnel.
- Please seek medical treatment in time

4.6 Symptoms caused by exposure:

- Exposure to battery contents may cause irritation and potential burns.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Characteristics of Hazard:

Toxic fumes, gases, or vapors may evolve on burning.

5.2 Hazardous Combustion Products:

- Battery may burst and release hazardous decomposition products when exposed to a fire situation.
- The battery in energy storage contains flammable electrolyte that may vent, ignite, and produce sparks when subjected to high temperatures, when damaged or abused (e.g. mechanical damage or electrical overcharging).
- May burn rapidly with flare-burning effect.
- May ignite other batteries in close proximity.

5.3 Suitable fire-extinguishing media:

- Dry chemical fire extinguishers.
- Carbon dioxide fire extinguishers.
- Water mist fire extinguishers.
- Class D fire extinguishers.
- F-500 fire extinguishers.

5.4 Attention in Fire-extinguishing:

The firefighters should put on anti-gas masks and full fire-fighting suits.

SECTION 6: ACCIDENTAL RELEASE

The information in this section contains generic advice and guidance. Battery material is enclosed in casing and is not released under normal usage.

6.1 Personal Precautions, protective equipment, and emergency procedures:

6.1.1 Restrict access to area until completion of clean-up.

6.1.2 Do not touch the spilled material.

6.1.3 Wear adequate personal protective equipment as written down in Section 8.

6.2 Environmental Precautions:

6.2.1 Prevent material from contaminating soil and from entering sewers or waterways.

6.3 Methods and materials for Containment:

6.3.1 Stop the leak if safe to do so.

6.3.2 Contain the spilled liquid with dry sand or earth.

6.3.3 Clean up spills immediately.

6.4 Methods and materials for cleaning up:

6.4.1 Absorb spilled material with an inert absorbent (dry sand, earth, vermiculite).

6.4.2 Scoop contaminated absorbent into an acceptable waste container.

6.4.3 Collect all contaminated absorbent and dispose following directions in Section 13.

6.4.4 Do not directly use water on leaking cells

6.4.5 Collect all contaminated wash water for proper disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Handling:

- Carefully read the product manuals before use.
- Do not handle the product in manner that allows terminals to short circuit.
- Do not open, disassemble, crush, or burn the energy storage.
- The units are heavy, use correct lifting techniques.

7.2 Storage:

- If the energy storage is subject to storage for such a long term as more than 3 months, it is recommended to recharge the battery periodically.
- Long period storage conditions:
- temperature 25±5 °C
- state of charge (SoC) 25-75%
- relative humidity (R.H.) 50±25%
- Do not storage the energy storage haphazardly in container where they may short-circuit each other or may be short-circuited by other metal objects.
- Keep out of reach of children.
- Do not expose the energy storage to heat or fire.
- Avoid storage in direct sunlight.
- Do not store together with oxidizing and acidic materials.

SECTION 8: EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

8.1 Exposure controls:

No engineering controls are required for handling batteries that have not been damaged. Personal protective equipment for damaged batteries should include chemical resistant gloves and safety glasses.

8.2 Personal Protective Equipment (PPE):

8.2.1 Respiratory Protection:

- Not necessary under conditions of normal use.
- In case of battery damaging, provide as much ventilation as possible.

8.2.2 Protective Gloves:

- Not necessary under conditions of normal use.

8.2.3 Other Protective Clothing or Equipment:

- Not necessary under conditions of normal use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

9.1 Color: Various.

9.2 Physical state: Metal rectangular enclosure (solid).

9.3 Odor: Odorless.

9.4 Odor threshold: Not determined.

9.5 pH: Not determined.

9.6 Melting point/freezing point: Not determined.

9.7 Initial boiling point and boiling range: Not available.

9.8 Flash point: Not determined.

9.9 Evaporation rate: Not determined.

9.10 Flammability (solid/gas): Battery may ignite if damaged or short circuited.

9.11 Lower and upper explosive (flammable) limits: Not determined.

9.12 Vapor pressure: Not available.

9.13 Vapor density: Not available.

9.14 Relative density: Not determined.

9.15 Solubility in water: Insoluble.

9.16 Partition coefficient; n-octanol/water: Not available.

9.17 Auto-ignition temperature: Not available.

9.18 Decomposition temperature: Not available.

9.19 Viscosity: Not available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

- No hazardous reactions if stored and handled as prescribed/indicated

10.2 Chemical stability:

- Stable under normal use, temperatures, pressure, and recommended storage conditions

10.3 Possibility of hazardous reactions:

- This product is considered stable if used as prescribed, however avoid misuse (e.g. short-circuiting or connecting with reverse polarity)
- If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

10.4 Conditions to prevent:

- Heat above 65°C or Incinerate.
- Deform.
- Mutilate.
- Crush.
- Disassemble.
- Overcharge.
- Short circuit.
- Expose over a prolonged period to humid conditions.

10.5 Incompatible materials:

- Strong oxidizers or acids

10.6 Hazardous and decomposition products:

- No hazardous decomposition products if handled and stored as prescribed/indicated.
- In case of open cells, there is the possibility of toxic fumes, and may form peroxides.

SECTION 11: TOXICOLOGY INFORMATION

Information on possible routes of exposure

11.1 Acute toxicity:

- No specific toxicity data exists for this product.
- The battery consists of a sealed metallic enclosure containing several chemicals and materials of construction that may be hazardous upon release.

11.2 Inhalation:

- Not a likely route of exposure under normal conditions.
- Toxicity data and effects of inhalation exposure not available.

11.3 Ingestion:

- Not a likely route of exposure under normal conditions.
- Toxicity data and effects of ingestion not available.

11.4 Skin contact:

- Not a likely route of exposure under normal conditions.
- In the event of exposure to internal contents, vapor fumes may be irritating to the skin

11.5 Eye contact:

- Not a likely route of exposure under normal conditions.
- In the event of exposure to internal contents, vapor fumes may be irritating to the eyes

11.6 Irritation/Corrosion:

- Not applicable.

11.7 Sensitization:

- Not applicable.

11.8 Mutagenicity:

- Not applicable.

11.9 Carcinogenicity:

- Not applicable.

11.10 Reproductive toxicity:

- Not applicable.

11.11 Teratogenicity Specific target organ toxicity (single exposure):

- Not applicable.

11.12 Specific target organ toxicity (repeated exposure):

- Not applicable.

11.13 Aspiration hazard:

- Not applicable.

11.14 Mixtures of chemicals:

- Not applicable.

SECTION 12: ECOLOGY INFORMATION

Prevent release of cell contents to soil, groundwater, or surface water.

Recycle spent batteries via authorized recycling channels.

Environmental impact from intact units during normal use is not expected.

12.1 Ecotoxicity:

- This product is not classified as environmentally hazardous.

12.2 Persistence and degradability

- Not applicable.

12.3 Bio accumulative potential

- Not applicable.

12.4 Mobility in soil

- No known significant effects or critical hazards.

12.5 Other adverse effects

- Not determined

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

- Must be recycled.
- Do not allow to enter to water supply or sewage systems.
- Dispose of in accordance with current local regulations.
- Contaminated packaging should be disposed of in accordance with current local regulations.

13.2 Attention for Waste Treatment:

- Discarded units must not be disposed of as ordinary waste.
- Do not throw discarded units into fire or place in high temperature.
- Discarded units must not be dissected, pierced, crushed, or treated similarly.

SECTION 14: TRANSPORT INFORMATION

The FREEN-BSL Energy Storage contains rechargeable sodium-ion battery cells.

The unit itself, and cells used in this product have been tested and approved in accordance with the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3 (UN38.3).

During transport the energy storage must be protected against short circuit and mechanical damage.

The package must be handled with care. A flammability hazard exists if the package is damaged.

Transport must comply with applicable dangerous goods regulations.

For air transport the state of charge (SoC) should not exceed 30% of nominal capacity.

14.1 UN Classification:

14.1.1 UN Number: **UN3551**
14.1.2 Proper Shipping Name: **Sodium-ion batteries**
14.1.3 Transport Hazard Class: **9** - Miscellaneous dangerous goods

SECTION 15: REGULATORY INFORMATION

The product is subject to the following regulations:

- Regulation (EC) No 1907/2006 (REACH)

The product is an article according to REACH.

The substances contained within the battery cells are not intended to be released during normal use.

- Regulation (EC) No 1272/2008 (CLP)

The product is not classified as hazardous under the CLP Regulation when used as intended.

- Regulation (EU) 2023/1542 - Batteries and Waste Batteries Regulation

This product is subject to the requirements of the EU Battery Regulation concerning manufacturing, labeling, sustainability, and end-of-life management of batteries.

- The international Civil Aviation Organization (ICAO) Technical Instructions.
- The international Air Transport Association (IATA) Dangerous Goods Regulations.
- The international Maritime Dangerous Goods (IMDG) Code.
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

SECTION 16: OTHER INFORMATION

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Prepared by: Freen OÜ

Notice to reader:

This safety datasheet provides guidelines for the safe handling and use of this product. It is based on current knowledge and does not guarantee absolute safety.

The information above is believed to be accurate and represents the best information currently available to us.

However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use.

Users should make their own investigations to determine the suitability of the information for their purposes.

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation.

It does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.