

SAFETY DATA SHEET

According to Hazard Communication standard (OSHA HCS) 29 CFR 1910.1200

1. Identification

Date: September 3, 2026

Sample Name(s): ELiMENT® Battery, 12V, 100Ah - Premium
ELiMENT® Battery, 12V, 100Ah - Premium Plus

Sample Model(s): E-12V100-PSK-01
E-12V100-PPSK-01

Rating: 12.8V/100Ah/1280Wh
Weight: 15.228 kg

Recommended Use: Rechargeable lithium-iron phosphate battery

Restrictions on Use: Not known. Read SDS before using product.

Manufacturer: Vanair®, a Lincoln Electric Company

Address: 10896 West 300 North, Michigan City, Indiana,

Telephone Number: 46360+1 (800) 526-8817

24/7 Contact: CHEMTREC (USA) +1 (800) 424-9300
CHEMTREC Customer Number (CCN): 84884

2. Hazard(s) Identification

(a) Preparation hazards and classification

No harm at the normal use. When the battery is in extreme pressure deformation, high-temperature environment, overload, short-circuit condition, or disassemble the battery, an explosion of fire and chemical burn hazards may occur.

(b) Primary Route(s) of Exposure

These chemicals are contained in a sealed stainless steel enclosure or a sealed aluminum foil pocket. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

(c) Potential Health Effects:

ACUTE (short term): See section 8 for exposure controls. In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.

Inhalation: A battery volatilizes no gas unless it was damaged. Damaged battery will volatilize little gas that may stimulate the respiratory tract or cause an anaphylaxis in serious condition.

Ingestion: The ingestion of the battery can be harmful. Content of open battery can cause serious chemical burns of mouth, esophagus and gastrointestinal tract.

Skin: In normal condition, contact between the battery and skin will not cause any harms. Contact with a damaged battery may cause skin allergies or chemical burns.

Eye: In normal condition, contact between the battery and eyes will not cause any harms. However, the gas volatilize from a damaged battery may be harmful to eyes.

CHRONIC (long term): See Section 11 for additional toxicological data.

(d)Medical Conditions Aggravated by Exposure

No information available.

(e)Reported as carcinogen

No information available.

GHS Label elements, including precautionary statements GHS:



GHS02



GHS05



GHS06

Signal word: Warning

Hazard statement(s):

H242:Heating may cause a fire;

H311: Toxic in contact with skin;

H314:Causes severe skin burns and eye damage;

H302:Harmful if swallowed;

H332:Harmful if inhaled;

Precautionary statements:

Prevention:

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P271 Use only outdoors or in a well-ventilated area.

Response:

P312:Call a Poison center or doctor/physician if you feel unwell.

P302+P350-IF ON SKIN: Gently wash with plenty of soap and water

P301+P330+P331-IF SWALLOWED: rise mouth. Do NOT induce vomiting

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Disposal:

P501: Dispose of contents/container in accordance with local/national regulations.

Hazards not otherwise classified (HNOC)

Not Applicable

3. Composition/Information on Ingredients**(a) Mixtures information**

Chemical Name	Percent of Content	CAS No.
Lithium iron phosphate (LiFePO_4)	28%	15365-14-7
Graphite (C)	17%	7782-42-5
Lithium hexafluorophosphate(LiPF_6)	15%	21324-40-3
Aluminum (Al)	8%	7429-90-5
Copper (Cu)	12%	7440-50-8
poly(vinylidene fluoride)	5%	24937-79-9
Nickel (Ni)	2%	7440-02-0
Iron (Fe)	13%	7439-89-6

4. First-Aid Measures**(a) Description of first aid measures**

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.

Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice /attention if you feel unwell.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice / attention if you feel unwell.

Ingestion: Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

b) Most important symptoms/effects, acute and delayed

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system.

(c) Immediate medical attention and special treatment

No information available.

5. Fire-Fighting Measures

(a) Extinguishing media

Suitable extinguishing media: Use foam, dry powder or dry sand, CO₂ as appropriate.

Unsuitable extinguishing media : No information available.

(b) Special hazards arising from the chemical

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO₂, Metal oxides, Irritating fumes.

(c) Special protective equipment and precautions for fire-fighters

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

6. Accidental Release Measures

(a) Personal precautions, protective equipment and emergency procedures

If the Lithium battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

(b) Environmental Precautions

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

(c) Methods and materials for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

7. Handling and Storage

(a) Precautions for safe handling

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

(b) Conditions for safe storage, including any incompatibilities

If the Lithium battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Lithium battery periodically. Operating temperature: Charge: 0°C~45°C. Discharge: -10°C~50°C. And recommended at -10°C~45°C for 1 month storage, at -10°C~35°C for 3 months storage. The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more. The voltage for a long time storage shall be 3.7V~4.2V range per cell block. Do not storage Lithium battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children.

8. Exposure Controls/Personal Protection

(a) Engineering Controls

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor. Keep away from heat and open flame. Store in a cool, dry place.

(b) Personal Protective Equipment

Respiratory Protection: Not necessary under normal conditions. Skin and body Protection: Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.

Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery.

Eye Protection: Not necessary under normal conditions, wear safety glasses if handling an open or leaking battery.

(c) Other Protective Equipment

Have a safety shower and eye wash fountain readily available in the immediate work area.

(d) Hygiene Measures

Do not eat, drink, or smoke in work area. Maintain good housekeeping.

9. Physical and Chemical Properties

(a) Appearance	Solid
(b) Odor	Monotony
(c) Odor threshold	Not available.
(d) pH	Not available.
(e) Melting point/freezing point	Not available.
(f) Initial boiling point and boiling range	Not available.
(g) Flash point	Not available.
(h) Evaporation rate	Not available.
(i) Flammability	Not available.
(j) Upper/lower flammability or explosive limits	Not available.
(k) Vapor pressure	Not available.
(l) Vapor density	Not available.
(m) Relative density	Not available.
(n) Solubility(ies)	Not available.
(o) Partition coefficient: n-oater	
(p) Auto-ignition temperature	130°C

(q)	Decomposition temperature	Not available.
(r)	Viscosity	Not available.

10. Stability and Reactivity

(a) Reactivity

Stable under recommended storage and handling conditions.

(b) Chemical stability

Stable under normal conditions.

(c) Possibility of hazardous reactions

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies cont release of pressure without ignition.

(d) Conditions to avoid

Do not subject Lithium battery to mechanical shock. Keep away from open flames, high temperature.

(e) Incompatible materials

Strong oxidizer, strong acid.

(f) Hazardous decomposition products

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

11. Toxicological Information

(a) Information on the likely routes of exposure

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

Skin contact: Contact with battery electrolyte may cause burns and skin irritation.

Eye contact: Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, and 4.

Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

(b) Information on toxicological characteristics

Acute toxicity: No data available.

Skin corrosion/irritation: The liquid in the battery irritates.

Serious eye damage/irritation: The liquid in the battery irritates.

Respiratory sensitization: The liquid in the battery may cause sensitization to some person.

skin sensitization: The liquid in the battery may cause sensitization to some person.

Carcinogenicity: Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

Germ Cell Mutagenicity: No data available.

Reproductive Toxicity: No data available.

STOT-Single Exposure: No data available.

STOT-Repeated Exposure: No data available.

Aspiration Hazard: No data available.

12. Ecological Information

(a) Ecotoxicity

Water hazard class 1(Self-assessment): slightly hazardous for water.

(b) Persistence and Degradability

No information available.

(c) Bioaccumulative potential

No information available.

(d) Mobility in soil

No information available.

(e) Other adverse effects

No information available.

13. Disposal Considerations

(a) Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations. The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling.

14. Transport Information

Label for conveyance	Lithium Battery Label	
UN Number	UN 3480 or UN 3481	
Transport hazard class(es)	9	
Packing group	965 or 966 967	II --
Marine pollutant	No	
	Lithium ion Batteries (Including lithium ion polymer batteries)	
UN Proper shipping name	Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries)	
	Lithium ion Batteries contained in equipment (Including lithium ion polymer batteries)	
ICAO/IATA	Can be shipped by air in accordance with international Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA) DGR 67 th Packing Instructions Section IA of 965 or Section I of 966~967 appropriately.	
IMDG CODE	International Maritime Dangerous Goods Code IMDG CODE (Amdt 42-24)	

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road under Special
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.

The dangerous goods regulations require that each battery design be subject to tests contained in Section 38.3 of the UN Manual of Tests and Criteria prior to being offered for transport.

15. Regulatory Information

《Dangerous Goods Regulations》

《Recommendation 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》

《Consumer Product Safety Act》 (CPSA)

《Federal Environmental Pollution Control Act》 (FEPCA)

《Resource Conservation and Recovery Act》 (RCRA)

《European Agreement concerning the International Carriage of Dangerous》

《Regulations concerning the International Carriage of Dangerous》

(EU) 2020 /878

In according with all Federal, State and local laws.

16. Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, this document makes 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 particular 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. This material safety data sheet provides guidelines for the safe handling and use of this product; 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.

* The SDS is prepared based on the information provided by client. The contents and formats of this SDS are revised as per client's request.

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