

MATERIAL SAFETY DATA SHEET

The Attached MSDS, represents the chemical construction of the manufactured cells used within Hawkwoods Lithium-Ion battery listed below.



Model
VL-350N

Description:
350Wh 14.4V V-Lok (V-mount) High Performance Li-Ion Battery

SECTION 1: Product & Company Identification

Product Information: Lithium-Ion Battery (All models manufactured by Hawk-woods.)
Manufacturer: Unit 8, Fairwood, Industrial Estate
 Leacon Road (off suffolk drive), Ashford, TN23 4FD, England
Emergency Tel: +44 (0)1233 638715
Emergency Overview: May explode in a fire which could release hydrogen fluoride gas, Use extinguishing media suitable for materials burning in fire.

SECTION 2: Hazards Identification

Primary routes of entry & Symptoms of Exposure

**If exposure to internal materials within cell due to damaged outer casing, the following actions are recommended.*

<p>Skin Contact <i>No effect under Routine handling and use, not a health hazard.</i> <i>*Wash area thoroughly with soap and water and seek Medical attention</i></p>	No	<p>Eye Contact <i>No effect under Routine handling and use, not a health hazard.</i> <i>*Rinse eyes with water for 15 minutes and seek medical attention</i></p>	No
<p>Ingestion <i>No Effect under Routine handling and use. If Swallowed, Obtain medical attention immediately.</i> <i>*Drink milk/water and induce vomiting; seek medical attention.</i></p>	No	<p>Inhalation <i>No Effect under routine handling and use, Not a health hazard</i> <i>*Leave area immediately and seek medical attention</i></p>	No
<p>Skin Absorbtion <i>No effect under Routine handling and use, not a health hazard.</i></p>	No	<p>Reported as carcinogen:</p>	N/A

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SECTION 3: Composition Information

Lithium-Ion Cell Hazardous Ingredients	%	CAS Number
Aluminium Foil	2-10%	7429-90-5
Nickel compound (proprietary)	0-25%	-
Manganese compound (proprietary)	0-15%	-
Cobalt compound (proprietary)	4-50%	-
Styrene-Butadiene-Rubber	< 1%	-
Polyvinylidene Fluoride (PVDF)	< 5%	24937-79-9
Copper Foil	2-10%	7440-50-8
Carbon (Proprietary)	10-30%	7440-44-0
Electrolyte (Proprietary)	10-20%	-
Stainless Steel, Nickel & Inert materials	remainder	n/a

SECTION 4: First Aid Measures

<p>Skin Contact <i>No effect under Routine handling and use, not a health hazard.</i> <i>*Wash area thoroughly with soap and water and seek Medical attention</i></p>	No	<p>Eye Contact <i>No effect under Routine handling and use, not a health hazard.</i> <i>*Rinse eyes with water for 15 minutes and seek medical attention</i></p>	No
<p>Ingestion <i>No Effect under Routine handling and use. If Swallowed, Obtain medical attention immediately.</i> <i>*Drink milk/water and induce vomiting; seek medical attention.</i></p>	No	<p>Inhalation <i>No Effect under routine handling and use, Not a health hazard</i> <i>*Leave area immediately and seek medical attention</i></p>	No
<p>Skin Absorbtion <i>No effect under Routine handling and use, not a health hazard.</i></p>	No	<p>Reported as carcinogen:</p>	N/A

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SECTION 5: Fire fighting measures

General hazard:	Cell is not flammable but internal organic material will burn if the cell is Incinerated. Combustion products include, but are not limited to hydrogen fluoride, Carbon monoxide and carbon dioxide.
Extinguishing Media:	Use extinguishing media suitable for the materials that are burning.
Special Firefighting:	If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) may explode/vent.
Firefighting Equipment:	Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

SECTION 6: Accidental Release Measures

On Land:	Place material into suitable containers and call local fire/police department
In Water:	If possible, remove from water and call local fire/police department.

SECTION 7: Handling & Storage

Handling:	No special protective clothing required for handling individual cells.
Storage:	Store in a cool, dry place.

SECTION 8: Exposure controls / Personal protection

Engineering controls:	Keep away from heat and open flame. Store in a cool dry place.
Respirator:	Not required during normal operations. SCBA required in the event of a fire.
Eye/Face protection:	Not required beyond safety practices of employer.
Gloves:	Not required for handling of cells.
Foot protection:	Steel toed shoes recommended for large container handling.

SECTION 9: Physical & Chemical Properties

No.	Test Item	Criteria	Result
Test 1	Altitude Simulation	<ul style="list-style-type: none">No Leakage, venting, disassembly, rupture and No fire.Measuring mass before/after each test(If M>5g, less than 0.1%)Measuring voltage before/after each test (More than 90%)	Pass
Test 2	Thermal Test		Pass
Test 3	Vibration		Pass
Test 4	Shock		Pass
Test 5	External Short Circuit	<ul style="list-style-type: none">No disassembly, rupture and fire within six hours of this test.Max. Temperature should not exceed 170c.	Pass
Test 6	Impact		Pass
Test 7	Overcharge	<ul style="list-style-type: none">No disassembly and fire within seven days of test.	Pass

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SECTION 10: Stability & Reactivity

- Stability:** Stable under normal conditions.
- Avoid Conditions:** Impact, Deconstruction, Direct sunlight, High temperatures, High Humidity, Sparks, Open flames, Water, Oxidisers & Acids

SECTION 11: Toxicological Information

- Irritation:** irritation to eyes, skins and throat
- Sensitivity:** Sensitivity to skin
- Respiratory:** Inhalation of vapours may cause irritation to the respiratory system

SECTION 13: Disposal

Once the battery has reached the end of its useful life, it should be disposed of according to the regulations set by the local authorities or in accordance with the relevant government legislation.

SECTION 14: Transport Information

Even classified as lithium ion batteries (UN3480), 2023 IATA Dangerous Goods Regulations 64th edition Packing Instruction 965 Section 1A or 1B is applied. The Product is handled as Non-Dangerous Goods by meeting the following Requirements.

UN Classification:	<ul style="list-style-type: none">UN3480 (Standalone - Battery Pack)UN3481 (Contained in equipment or packed with equipment)
Shipping Identification	Lithium-Ion Batteries
Class	Class 9 - Miscellaneous Dangerous Goods

- IATA (DGR)** - Packing instructions **965**, when capacity is below 100Wh and other conditions met.
- IATA (DGR)** - Packing instructions **965** Section 1B, when capacity is below 100Wh and other conditions met.
- IATA (DGR)** - Packing instructions **965** Section 1A, when capacity is over 100Wh
- When batteries are packaged with equipment or contained in equipment, refer to packing instructions (966 or 967 instead of 965)

Over 100W

Lithium ion cells and batteries offered for transport are not subject to other additional requirements of the UN Regulations if they meet the following:

- For cells, the Watt-hour rating is not more than 20Wh.
- For batteries, Watt-hour rating is not more than 100Wh.
- Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and criteria Part 3 subsection 38.3.
- Each cells comply with Special Provision A154.
- Quantity per Package shall not exceed 10kg.

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SECTION 15: Regulatory Information

UN(United Nations):	Recommendations on the Transportation of Dangerous Goods Model Regulations.
ICAO (International Civil Aviation Organisation):	Technical Instrucions for the safety transport of dangerous goods by air.
IATA (International Air Transport Organisation):	Dangerous Goods Regulations 64th Edition.
IMO (International Maritime Organisation):	International Maritime Dangerous Goods (IMDG) code.

SECTION 16: Other Information

The data presented in this Safety Data Sheet is derived from the latest research findings and existing laws. It serves as a reference for the product's impact on health, safety, and the environment, and should not be interpreted as a guarantee of its technical efficiency or suitability for specific purposes.