

Material Safety Data Sheet (MSDS)

ZLand[®] Lithium-ion Battery Pack

Part Number 221.6947.0001 MSDS Revision D Date 03-11-2010 Approved by FairfieldNodal HSE Department	May be used to comply with OSHA's hazard communication standard, 29 cfr 1910.1200. Standard must be consulted for specific requirements.
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Section 1 – Chemical and Company Identification

Product Identification

Product Name: Assy, Case Bottom, ZL
Manufacturer: FairfieldNodal
Division: Systems
Part Number: 221.6947.0001

Company Identification

FairfieldNodal
1111 Gillingham Lane
Sugar Land, TX 77478, USA

281-275-7500

Emergency 24-Hour Telephone Number:
CHEMTREC,
INSIDE U.S. 800-262-8200
OUTSIDE U.S. 703-741-5500

Fax: 703-741-6037

www.FairfieldNodal.com

Section 2 – Composition / Information on Ingredients

Battery Pack contains 20 Lithium-ion, 3.7 V, 2.6 Ah cells encased in polyurethane (plastic).

Lithium-ion Cells

Hazardous Ingredients	%	CAS Number
Metal Oxide (proprietary)	20-50	
Carbon (proprietary)	10-30	7440-44-0
Electrolyte (proprietary)	10-20	
Aluminum Foil	2-10	7429-90-5
Copper Foil	2-10	7440-50-8
Polyvinylidene Fluoride (PVDF)	<5	24937-79-9
Stylene-Butadiene-Rubber	<1	
Stainless steel, Nickel and inert materials	Remainder	N/A

Mechanical Specifications

	Weight	Watt Hours	Equivalent Lithium Content
Battery Pack	1.70 kg	192.4 Wh	15.60 gm

Section 3 – Hazards Identification

The batteries and polyurethane (plastic) potting are designed to withstand temperature and pressure encountered in routine use. Under normal use there will be no contact with the batteries or potting.

Cells may explode in a fire causing the release of hydrogen fluoride gas. Use extinguishing media suitable for materials burning in fire.

Primary Routes of Entry

- Skin contact** – No effect under routine handling and use
- Skin absorption** – No effect under routine handling and use
- Eye contact** – No effect under routine handling and use
- Inhalation** – No effect under routine handling and use
- Ingestion** – No effect under routine handling and use

Symptoms of Exposure

Under routine handling and use, there will be no effect from exposure.

- Skin contact** – No effect under routine handling and use
- Skin absorption** – No effect under routine handling and use
- Eye contact** – No effect under routine handling and use
- Inhalation** – No effect under routine handling and use
- Ingestion** – Reported as carcinogen Not applicable

Section 4 – First Aid Measures

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

- Skin contact** – Wash area thoroughly with soap and water and seek medical attention.
- Eye contact** – Rinse eyes with water for 15 minutes and seek medical attention.
- Inhalation** – Leave area immediately and seek medical attention.
- Ingestion** – Drink milk/water and induce vomiting; seek medical attention.

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 Instructions

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 and Storage

Handling

No special protective clothing required for handling battery packs.

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.

Personal Protection

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 battery packs.

Foot protection

Steel toed shoes recommended for large container handling.

Section 9 – Physical and Chemical Properties

State	Solid
Odor	N/A
PH	N/A
Vapor pressure	N/A
Vapor density	N/A
Boiling point	N/A
Solubility in water	Insoluble
Specific gravity	N/A
Density	N/A

Section 10 – Stability and Reactivity

Reactivity

None

Stability

Stable under routine use

Incompatibilities

None during normal operation

Hazardous Decomposition Products

None during normal operating conditions

If cells are opened, hydrogen fluoride and carbon monoxide may be released.

Conditions to Avoid

Avoid exposure to heat and open flame.

Do not puncture, crush, or incinerate.

Section 11 – Toxicological Information

This product does not emit toxins during routine handling and use.

Sensitization	No
Teratogenicity	No
Reproductive Toxicity	No
Acute Toxicity	No

If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

Section 12 – Ecological Information

Some materials within the cell are bio-accumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

Section 13 – Disposal Considerations

Recommended methods for safe and environmentally preferred disposal:

Product

Recycle through a recycling company. Do not throw a used battery or battery pack into the environment.

Contaminated Package

The battery pack is not contaminated under normal use. If internal materials leak, dispose as industrial wastes subject to special control.

California regulated debris RCRA Waste Code: Non-regulated dispose of according to all federal, state, and local regulations.

Section 14 – Transport Information

The battery pack meets the requirements of the test outlined in the United Nations (UN) Manual of Tests and Criteria, Part III, Sub-Section 38.3.

- **Battery Pack Only**
UN Identification Number and Proper Shipping Name:
UN3480, Lithium Ion Batteries, Class 9, Packing Group II
- **Battery Packs Contained in Node**
UN Identification Number and Proper Shipping Name:
UN3481, Lithium Ion Batteries Contained in Equipment, Class 9, Packing Group II

ZLand® Node Unit

Total weight of battery packs contained in the ZLand® Node: 1.70 kg – Net per Package
Node Case is an approved UN shipping package type, 3H2-Plastic Jerrican
Cargo and Passenger Aircraft Allowed with Declaration

Refer to current Emergency Response Guides for; DOT (Land/Rail), IMDG (Ocean Transport), IATA-ICAO (Air Transport).

Section 15 – Regulatory Information

The transport of rechargeable lithium-ion batteries is regulated by various bodies, (IATA, IMO, US-DOT) that follow the United Nations "Recommendations on the Transport of Dangerous Goods.

Regulations specifically applicable to the product:

ICAO 2009/2010 Edition of ICAO Technical Instructions for the Safety Transport of Dangerous Goods by Air
IMO IMDG Amendment 34-08 2008-2010

IATA 50th Edition (2009) of the IATA Dangerous Goods Regulations (DGR)

US Department of Transportation DOT (49 CFR 100-185), (USA)

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous Non-hazardous

Section 16 – Other Information

The information contained in the Material Safety Data Sheet is based on the present knowledge and current legislation.

The Material Safety Data Sheet provides guidance on health, safety, and environmental aspects for the product and should not be understood as any guarantee of technical performance or suitability for particular applications.