

# Material Safety Data Sheet (MSDS)

NNF1C-BTI

Lithium-ion Battery Pack

MSDS Revision	A
Date	04-08-2020
Approve by	R&D Department
Type	2 S 2 P

## Section 1 – Chemical and Company Identification

### Product Identification

Product Name: Battery Pack Assy, 7.6V 46WH  
Manufacturer: Battery Technology Inc. (HK) Ltd.

### Company Identification

Battery Technology Inc. (HK) Ltd.  
Workshop No.H 11/F Everest Industrial Centre, 396 Kwun Tong Road Kowloon.  
[www.batterytech.com](http://www.batterytech.com)

## Section 2 – Composition/ Information on Ingredients

Battery Pack contains 4 Lithium Polymer, 3.0Ah cells encased in polyurethane (plastic)

Hazardous Ingredients	%	CAS Number
Aluminum Foil	2-10	7429-90-5
Nickel compound	0-25	
Manganese compound	0-15	
Cobalt compound	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 and inert materials	Remainder	N/A

## 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 fire.

### Primary Routes of Entry

<b>Skin contact</b>	No effect under routine handling and use
<b>Skin absorption</b>	No effect under routine handling and use
<b>Eye contact</b>	No effect under routine handling and use
<b>Inhalation</b>	No effect under routine handling and use
<b>Ingestion</b>	No effect under routine handling and use

### Symptoms of Exposure

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

<b>Skin contact</b>	No effect under routine handling and use
<b>Skin absorption</b>	No effect under routine handling and use
<b>Eye contact</b>	No effect under routine handling and use
<b>Inhalation</b>	No effect under routine handling and use
<b>Ingestion</b>	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.

<b>Skin contact</b>	Wash area thoroughly with soap and water and seek medical attention.
<b>Eye contact</b>	Rinse eyes with water for 15 minutes and seek medical attention.
<b>Inhalation</b>	Leave area immediately and seek medical attention.
<b>Ingestion</b>	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 monoxide.

### 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 NIOSHQA/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

## Section 6 – Accidental Release Measure

### 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

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

## Section 10 – Stability and Reactivity

### Reactivity

None

### Stability

Stable under routine use

### Incompatibilities

None during normal operations

### Hazardous Decomposition Products

None during normal operation 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.

<b>Sensitization</b>	No
<b>Teratogenicity</b>	No
<b>Reproductive Toxicity</b>	No
<b>Acute Toxicity</b>	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.

### Containment 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

Lithium Ion batteries are considered to be “Rechargeable batteries” and meet the requirements of transportation by the U.S Department of Transportation (DOT), International Civil Aviation Administration (ICAO) and IMO-IMDG code (Special Provision 188 and 230).

For the lithium ion battery pack, the Watt-hours is not more than 100Wh.

Even classified as lithium ion batteries (UN 3480), 2020 IATA Dangerous Good Regulation 61<sup>th</sup> Edition Packing Instruction 965 Section 1B is applied.

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

No	Items	Results	Remarks
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery
2	Thermal Test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External Short Circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	
8	Forced Discharge	N/A	For Cell only

## Section 15 – Regulatory Information

This regulatory information included here should not necessarily be considered all inclusive. None of the ingredients in these products are subjected to the reporting requirements of the CERCLA, the Clean Air Act and the Clean Water act (US). This product is not formulated with, nor do the manufacturing and formulation process utilize any Class I or II Ozone depleting substance.

## 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.