

# Material Safety Data Sheet

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## 1. Chemical Product and Company Identification

<b>Product:</b>	Lithium ion Polymer Rechargeable Cell
<b>Manufacturer:</b>	Conrad Electronic SE
<b>Nominal voltage:</b>	3.7 V
<b>Nominal capacity:</b>	4000 mAh, 14.8 Wh
<b>Address:</b>	Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue:</b>	05.01.2019

## 2. Composition Information

Chemical Composition	Chemical Formula	Weight(%)	CAS Number
Nickel Cobalt Lithium manganate	LiNiO <sub>5</sub> MnO <sub>5</sub> O <sub>2</sub>	40.9	12190-79-3
Polyvinylidene Fluoride (PVDF)	(C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> ) <sub>n</sub>	0.82	24937-79-9
Aluminium	Al	4.8	7429-90-5
Graphite	C	18.93	7782-42-5
Styrene-Butadiene Rubber (SBR)	(C <sub>8</sub> H <sub>8</sub> C <sub>4</sub> H <sub>6</sub> ) <sub>x</sub>	0.79	9003-55-8
Carboxymethylcellulose	[C <sub>6</sub> H <sub>7</sub> O <sub>2</sub> (OH) <sub>2</sub> CH <sub>2</sub> COO] <sub>n</sub>	0.30	9000-11-7
Conductive Carbon black	C	4.26	--
Copper	Cu	7.86	7440-50-8
Nickel	Ni	0.09	7440-02-0
Lithium Hexafluorophosphate	LiPF <sub>6</sub>	18.15	21324-40-3
Nylon	C <sub>2</sub> ClF <sub>3</sub> (unspec.)	3.0	24937-16-4
Polypropylene	(C <sub>3</sub> H <sub>6</sub> ) <sub>n</sub>	0.1	9003-07-0

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### 3. Hazards Identification

#### Explosive risk

This article does not belong to the explosion dangerous goods

#### Flammable risk

This article does not belong to the flammable material

#### Oxidation risk

This article does not belong to the oxidation of dangerous goods

#### Toxic risk

This article does not belong to the toxic dangerous goods

#### Radioactive risk

This article does not belong to the radiation of dangerous goods

#### Mordant risk

This article does not belong to the corrosion of dangerous goods

#### Other risk

Watt hour rate 14.8 Wh, which belong to the Lithium ion batteries (including lithium ion polymer batteries)

### 4. First aid measures

#### Eye

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

#### Skin

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

#### Inhalation

Remove from exposure and move to fresh air immediately. Use oxygen if available.

#### Ingestion

Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

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### 5. Fire-fighting measures

**Flash Point:**

N/A.

**Auto-Ignition Temperature:**

N/A.

**Extinguishing Media:**

Water, CO2.

**Special Fire-Fighting Procedures:**

Self-contained breathing apparatus.

**Unusual Fire and Explosion Hazards:**

Cell may vent when subjected to excessive heat-exposing battery contents.

**Hazardous Combustion Products:**

Carbon monoxide, carbon dioxide, lithium oxide fumes.

### 6. Accidental release measures

**Steps to be Taken in case Material is Released or Spilled**

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

**Waste Disposal Method**

It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, and to bury the discharged battery in soil.

### 7. Handling and storage

The battery should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.

Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire.

Do not crush or puncture the battery, or immerse in liquids.

**Precautions to be taken in handling and storing**

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

**Other Precautions**

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

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### 8. Exposure controls/personal protection

#### Respiratory Protection

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

#### Ventilation

Not necessary under conditions of normal use.

#### Protective Gloves

Not necessary under conditions of normal use.

#### Other Protective Clothing or Equipment

Not necessary under conditions of normal use.

#### Personal Protection is recommended for venting battery

Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

### 9. Physical and chemical properties

Appearance: Quadrate shape

Odour: If leaking, smells of medical ether.

pH: Not applicable as supplied.

Flash Point: Not applicable unless individual components exposed.

Flammability: Not applicable unless individual components exposed.

Relative density: Not applicable unless individual components exposed.

Solubility (water): Not applicable unless individual components exposed.

Solubility (other): Not applicable unless individual components exposed.

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### 10. Stability and reactivity

**Stability:**

Product is stable under conditions described in Section 7.

**Conditions to avoid:**

Heat above 70°C or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.

**Materials to avoid:**

Oxidising agents, alkalis, water.

**Hazardous Decomposition Products:**

Toxic Fumes, and may form peroxides.

**Hazardous Polymerization:**

N/A.

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

### 11. Toxicological information

**Signs & symptoms:**

None, unless battery ruptures. In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

**Inhalation:**

Lung irritant.

**Skin contact:**

Skin irritant

**Eye contact:**

Eye irritant

**Ingestion:**

Poisoning if swallowed

**Medical conditions generally aggravated by exposure:**

In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

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### 12. Ecological information

**Mammalian effects:**

None known at present.

**Eco-toxicity:**

None known at present.

**Bioaccumulation potential:**

Slowly Bio-degradable.

**Environmental fate:**

None known environmental hazards at present.

### 13. Disposal consideration

Do not incinerate, or subject cells to temperature in excess of 70°C, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

### 14. Transport information

Label for conveyance: Lithium Battery Mark, the Class 9—Lithium Battery hazard label, the Cargo aircraft Only Label.

UN Number: UN3480

Packing Group: N/A.

EmS No: F-A, S-I

Marine pollutant: No

Proper Shipping name: Lithium ion batteries (Including lithium ion polymer batteries)

Hazard Classification: The goods shall be complied with the requirements of Section IB of Packing Instructions 965 of 60 th DGR Manual of IATA (2019 Edition) and special provision 188 of IMDG CODE (Amdt. 38-16) 2016 Edition, including the passing of the UN38.3 test.

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### **15. Regulation information**

#### **Law information**

Dangerous Goods Regulations

Recommendations 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

Occupational Safety and Health Act (OSHA)

Toxic Substance Control Act (TSCA)

Consumer Product Safety Act (CPSA)

Federal Environmental Pollution Control Act (FEPCA)

The Oil Pollution Act (OPA)

Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA)

Resource Conservation and Recovery Act (RCRA)

Safety Drinking Water Act (CWA)

California Proposition 65

Code of Federal Regulations (CFR)

In accordance with all Federal, State and local laws.

### **16. Other information**

The commissioner provides the composition information of batteries, and promises its integrity and accuracy. Users should read this file carefully, and use the batteries in correct method. We don't assume responsibility for any damage or loss because of misuse of batteries.