

# Material Safety Data Sheet

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## 1. Chemical Product and Company Identification

<b>Product:</b>	Li-polymer battery, rechargeable
<b>Nominal voltage:</b>	3.7 V
<b>Nominal capacity:</b>	200 mAh (0,74 Wh)
<b>Manufacturer:</b>	Conrad Electronic SE
<b>Address:</b>	Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue</b>	13.09.2019

## 2. Hazardous Ingredients

### Preparation hazards and classification

Not dangerous with normal use. Do not dismantle, open or shred the Rechargeable Li-polymer battery ingredients contained within or their ingredients products could be harmful.

### Appearance, Color, and Odor

Solid object with no odor, no color.

### Primary Route(s) of Exposure

These chemicals are contained in a sealed enclosure. 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

### 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:**

Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.

#### **Ingestion:**

Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

#### **Skin:**

Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

#### **Eye:**

Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

#### **CHRONIC (long term):**

see Section 11 for additional toxicological data

## Material Safety Data Sheet

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### Medical Conditions Aggravated by Exposure

Not applicable

### Reported as carcinogen

Not applicable

### 3. Composition/Information on Ingredients

Rechargeable Li-polymer battery is a mixture.

Chemical Name	CAS Number	Weight-%
LiCoO <sub>2</sub>	12190-79-3	30
Aluminum foil	7429-90-5	7
Aluminum packing foil	7429-90-5	4
Copper	7440-50-8	11
Nickel	7440-02-0	1
PVDF	24937-79-9	1
SBR	9003-55-8	2
Graphite	7782-42-5	16
Polyethylene	9002-88-4	4
Electrolyte	N/A	19
Other	N/A	5

### Labeling according to EC directives:

No symbol and risk phrase are required.

**Note:** CAS number is Chemical Abstract Service Registry Number.

N/A: Not applicable.

## Material Safety Data Sheet

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### 4. First-aid Measures

#### Inhalation

If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.

#### Skin contact

If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

#### Eye contact

If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.

#### Ingestion

If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

### 5. Fire-fighting Measures

#### Flammable Properties

In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.

#### Suitable extinguishing Media

Use extinguishing media suitable for the materials that are burning.

#### Unsuitable extinguishing Media

Not available

#### Explosion Data

Sensitivity to Mechanical Impact: This may result in rupture in extreme cases

Sensitivity to Static Discharge: Not Applicable

#### Specific Hazards arising from the chemical

Fires involving Rechargeable Li-polymer battery are controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire

#### Protective Equipment and precautions for firefighters

As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

#### NFPA

Health: 0 Flammability: 0 Instability: 0

## Material Safety Data Sheet

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### 6. Accidental Release Measures

#### Personal Precautions, protective equipment, and emergency procedures

Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.

#### Environmental Precautions

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

#### Methods and materials for Containment

Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

#### Methods and materials for cleaning up

Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

### 7. Handling and Storage

#### Handling

Don't handle Rechargeable Li-polymer battery with metalwork. Do not open, disassemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace. Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

#### Storage

If the Rechargeable Li-polymer battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Rechargeable Li-polymer battery periodically. 3 months: -10°C~+40°C, 45 to 85%RH And recommended at 0°C~+35°C for long period storage.

The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

Do not store Portable Charger 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.

Do not expose Rechargeable Li-polymer battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

## Material Safety Data Sheet

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### 8. Exposure Controls and Personal Protection

#### 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.

#### 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.

##### Other Protective Equipment

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

##### Hygiene Measures

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

## Material Safety Data Sheet

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### 9. Physical and Chemical Properties

#### Physical State

Form: Solid

Color: Silver

Odor: Odorless

#### Change in condition:

pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

### 10. Stability and Reactivity

#### Stability

The product is stable under normal conditions.

#### Conditions to Avoid (e.g. static discharge, shock or vibration)

Do not subject Rechargeable Li-polymer battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.

#### Incompatible Materials

Not Available

#### Hazardous Decomposition Products

This material may release toxic fumes if burned or exposed to fire

#### Possibility of Hazardous Reaction

Not Available

## Material Safety Data Sheet

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### 11. Toxicological Information

#### Irritation

Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

#### Sensitization

Not Available

#### Neurological Effects

Not Available

#### Teratoaenicity

Not Available

#### Reproductive Toxicity

Not Available

#### Mutagenicity (Genetic Effects)

Not Available

#### Toxicologically Synergistic Materials

Not Available

### 12. Ecological Information

#### General note:

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

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

#### Anticipated behavior of a chemical product in environment/possible environmental impact/ecotoxicity

Not Available

#### Mobility in soil

Not Available

#### Persistence and Degradability

Not Available

#### Bioaccumulation potential

Not Available

#### Other Adverse Effects

Not Available

## Material Safety Data Sheet

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### 13. Disposal Considerations

**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.

### 14. Transport Information

Rechargeable Li-polymer battery had passed the UN 38.3 test and is classified as non-dangerous goods and also complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Rechargeable Li-polymer battery.

The Rechargeable Li-polymer battery is transported according to the NEW PACKING INSTRUCTION 965 SectionIB of IATA DGR 60th edition.

More information concerning shipping, testing, marking and packaging can be obtained from label master at <http://www.labelmaster.com/>.

Each package must be labeled with a Lithium battery label.

Li-ion batteries can be treated as "Non-dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations.
- The International Maritime Dangerous Goods (IMDG) Code.
- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

### 15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous \_\_\_\_\_ Non-hazardous \_\_\_V\_\_\_

## Material Safety Data Sheet

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### 16. Other Information

The information above is believed to be accurate and represents the best information currently available to us.

However, we make no warranty of ability 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 data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.