Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau

Item no.: 1497432

Material Safety Data Sheet

1. Product & Company Identification

Product:	Li-Ion Rechargeable Battery
Nominal voltage:	3.7 V
Nominal capacity:	1000 mAh
Manufacturer:	Conrad Electronic SE
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date of issue:	28.11.2017

2. Hazards Identification

Preparation hazards and classification

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

Apperance, Color, and Odor

Solid object with no odor, no color.

Primary Route(s) of Exposure

These chemicals are contained in a sealed stainless steel 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

Medical Conditions Aggravated by Exposure: Not applicable

Reported as carcinogen: Not applicable

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3. Composition/Information on Ingredients

Li-ion Battery is a mixture.

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Lithium cobalt oxides	35.05%	12190-79-3
Graphite powder (C)	15.98%	7782-42-5
Rubber	10.36%	69028-37-1
Carbon black	0.79%	1333-86-4
Styrene butadiene rubber (SBR)	0.71%	61789-96-6
Polypropylene	1.74%	9003-07-0
Polyethylene	1.27%	9002-88-4
Lithium hexafluoroarsenate (LiPF6)	1.27%	21324-40-3
Ethylene carbonate (EC)	6.34%	96-49-1
Other	26.49%	N/A

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

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.

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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 Li-ion 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

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.

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7. Handling and Storage

Handling

Don't handling Li-ion Battery with metalwork. Do not open, dissemble, 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 Li-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion 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.

The voltage for a long time storage shall be 3.7V ~ 4.2V range.

Do not storage Li-ion Battery 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 Li-ion Battery to heat or fire.

Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

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.

9. Physical and Chemical Properties

Physical State:

Form: Solid

Color: Black

Odour: Monotony

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.

Odout 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 Li-ion 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

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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 impace/ecotoxicity

Not Available

Mobility in soil

Not Available

Persistence and Degradability

Not Available

Bioaccumulation potential

Not Available

Other Adverse Effects

Not Available

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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

The Li-ion Battery had passed the test UN 38.3 and are classified as non-dangerous goods; Our Li-ion Battery comply 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 Li-ion Battery.

The Li-ion Battery according to NEWEST PACKING INSTRUCTION 965~967 section II of IATA DGR 55th Edition for transportation.

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 handling label. Lithium-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_____x_____

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 merchantability 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.