Material Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product:	USB rechargeable battery, LIR18650
Manufacturer:	Conrad Electronic SE
Nominal voltage:	3.7 V
Nominal capacity:	1400 mAh
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date of issue:	01.11.2016

2. Hazards Identification

Emergency overview: None

Classification according to GHS

Not a dangerous substance according to GHS.

Label elements

Hazard pictogram(s): No available

Signal word: No available

Hazard statement(s): No available

Precautionary statement(s):

Prevention: No available

Response: No available

Storage: No available

Disposal: No available

Other hazards

Physical and chemical hazards: See Section 10

Human health hazards: See Section 11

Envlronmental hazards: See Section 12

Material Safety Data Sheet

3. Compostion/Information on Ingredients

Chemical characterization:

Mixture

Chemical Composition	CAS No.	EC No.	Weight (%)
Ternary material (Nickel cobalt manganese)	-	-	56.3
s-P (Conductive Agent)	-	-	1.95
Polyvinylidene fluoride resin	24937-79-9	607-458-6	1.81
Graphite	7782-42-5	231-955-3	27.96
Sodium carboxy methyl cellulose	9004-32-4	618-378-6	0.51
Rubber, styrene-butadiene, fume	61789-96-6	612-382-1	1.47
Acrylonitrile-butadiene-styrene terpolymer	9003-56-9	-	3
Iron	7439-89-6	231-096-4	7

4. First Aid Measures

Description of first aid measures

General Information

No special measures required.

After eye contact

Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.

After skin contact

Remove contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.

After Inhalation

Remove victim to fresh area. Administer artificial respiration if breathing is difficult. Seek medical attention.

After swallowing

Do not induce vomiting. Get medical attention.

Personal protective equipment for first-aid responders

No data available.

Most important symptoms/effects, acute and delayed

No data available.

Indication of immediate medical attention and special treatment needed

No data available.

Material Safety Data Sheet

5. Fire Fighting Measures

Suitable extinguishing media:

Use extinguishing agent suitable for local conditions and the surrounding environment. Such as dry powder, CO2.

Unsuitable extinguishing media:

No data available.

Specific Hazards arising from the chemical:

Special hazards arising from the substance or mixture:

Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature (>150°C (302°F)), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

Specific protective actions for fire-fighters:

Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental Release Measures

Personal precautions:

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

Protective equipment:

No data available.

Emergency procedures:

Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water.

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and materials for containment and cleaning up:

All waste must refer to the United Nations, the national and local regulations for disposal.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Material Safety Data Sheet

7. Handling and Storage

Precautions for safe handling:

Consumption of food and beverage should be avoided in work areas.

Wash hands with soap and water before eating, drinking.

Ground containers when transferring liquid to prevent static accumulation and discharge.

Information about fire and explosion protection

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

Conditions for safe storage, including any incompatibilities:

Requirements to be met by storerooms and receptacles

Store in a cool, dry, well-ventilated place.

Information about storage in one common storage facility

Keep away from heat, avoiding the long time of sunlight.

Further information about storage conditions

Keep container tightly sealed.

Specific and use

No data available.

Material Safety Data Sheet

8. Exposure Controls/Personal Protection

Control Paramenters:

CAS No.	ACGIH	NIOSH	OSHA
24937-79-9	N/A	N/A	N/A
7782-42-5	TLV-TWA 2mg/m3	REL-TWA 2.5mg/m3	PEL-TWA 15mppcf PEL-TWA 20mppcf
9004-32-4	N/A	N/A	N/A
61789-96-6	N/A	N/A	N/A
9003-56-9	N/A	N/A	N/A
7439-89-6	N/A	N/A	N/A

Engineering control:

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Personal Protective Equipment

Respiratory protection:

Wear suitable protective mask in order to reduce the respiratory system. A large number of leakage, wear chemical protective clothing, including self-contained breathing apparatus.

Hand Protection:

Wear appropriate protective gloves to reduce skin contact.

Eyes Protection:

Wear safety goggles or eye protection combined with respiratory protection.

Skin and Body Protection:

Working environment required, wear suitable protective clothing to minimize contact with skin. The type of protective equipment must be according to the concentration and the content of certain hazardous substances in the workplace.

Material Safety Data Sheet

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Colour:	White.
Physical State:	Cylindrical.
Odour:	Not available.
Odour threshold:	Not available.
pH:	Not available.
Melting point/freezing point:	Not available.
Initial boiling point and boiling range:	Not available.
Flash Point:	Not available.
Evaporation rate:	Not available.
Flammability (solid, gas):	Not available.
Explosion Limits (vol% in air):	Not available.
Vapour pressure, kPa at 20°C:	Not available.
Vapor density:	Not available.
Density/Relative density (water = 1):	Not available.
Solubility(ies):	Not available.
Partition coefficient: n-octanol/water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Viscosity:	Not available.
Other information:	Voltage 3.7V
	Electric capacity: 1400mAh
	Electric Energy: 5.18Wh

Material Safety Data Sheet

10. Stability and Reactivity

Reactivity:

No data available.

Chemical stability:

Stable.

Possibility of hazardous reactions:

No data available.

Conditions to Avoid:

Flames, sparks, and other sources of ignition, incompatible materials.

Incompatibilities materials:

Oxidizing agents, acid, base.

Hazardous decomposition products:

Carbon monoxide, carbon dioxide, lithium oxide fumes.

11. Toxicological Information

CAS No.	LC50/LD50
24937-79-9	No data available.
7782-42-5	No data available.
9004-32-4	No data available.
61789-96-6	No data available.
9003-56-9	No data available.
7439-89-6	No data available.

Skin corrosion/irritation:

No data available.

Serious eye damage/irritation:

No data available.

Respiratory or Skin sensitization:

No data available.

Germ Cell mutagenicity:

No data available.

Carcinogenicity:

No data available.

Reproductive toxicity:

No data available.

Material Safety Data Sheet

Specific target organ toxicity-Single exposure:

No data available.

Specific target organ toxicity-Repeated exposure:

No data available.

Aspiration hazard:

No data available.

Information on the likely routes of exposure:

No data available.

Eye:

No data available.

Skin:

No data available.

Ingestion:

No data available.

Inhalation:

No data available.

12. Ecological Information

Ecological Toxicity:

No data available.

Persistence and degradability:

No data available.

Bioaccumulative Potential:

No data available.

Mobility in Soil:

No data available.

Other adverse effects:

No data available.

13. Disposal Considerations

Disposal methods:

Recommendation:

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packaging

Recommendation: Disposal must be made according to official regulations.

Material Safety Data Sheet

14. Transport Information

UN Number

IATA: UN3480

IMDG: UN3480

Model Regulation: UN3480

UN Proper shipping name

IATA: Lithium ion batteries

IMDG: LITHIUM ION BATTERIES

Model Regulation: LITHIUM ION BATTERIES

Transport hazard class(es)

IATA: 9

IMDG: 9

Model Regulation: 9

Packing group

IATA: N/A

IMDG: N/A

Model Regulation: N/A

Packaging Sign

IATA:.

IMDG: N/A

Model Regulation: N/A

Environmental hazards

Marine pollutant: No

Special precautions for user:

Not applicable.

Transport Information:

The USB Rechargeable Battery LIR18650 has passed the test UN38.3, according to the report ID MZIAOZFN03825521. Exceeds the standard of Table 965-II, so it belongs to dangerous goods. Be shipped by passenger and cargo aircraft. According to the Packing Instruction 965 section IB of IATA DGR 57th Edition for transportation.

According to the special provision 188 of IMDG (37-14) or the <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (19th). The products are not subject to dangerous goods.

Separate batteries to prevent short-circuiting. and they should be packed in strong package during transport. Lithium cell or battery should incorporate a safety venting device or be designed to prevent a violent rupture under normal transport conditions. Keep away from high temperature and open flames.

Transport Fashion: By air, by sea, by railway, by road.

Material Safety Data Sheet

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

CAS No.	TSCA	IECSC	DSL/NDSL	EINECS/ELINCS/NLP
24937-79-9	Listed	Listed	Listed DSL	Listed
7782-42-5	Listed	Listed	Listed DSL	Listed
9004-32-4	Listed	Listed	Listed DSL	Listed
61789-96-6	Listed	Listed	Listed DSL	Listed
9003-56-9	Listed	Listed	Listed DSL	Listed
7439-89-6	Listed	Listed	Listed DSL	Listed

16. Other Information

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Other Information:

CAS: (Chemical Abstracts Service);

EC: (European Commission);

ACGIH: (American Conference of Governmental Industrial Hygienists);

NIOSH: (US National Institute for Occupational Safety and Health);

OSHA: (US Occupational Safety and Health);

TLV: (Threshold Limit Value)

TWA: (Time Weighted Average);

STEL: (Short Term Exposure Limit);

PEL: (Permissible Exposure Level);

REL: (Recommended Exposure Limit);.

PC-STEL: (Permissible concentration-time weighted average);

PC-TWA: (Perrnissible concentration-short time exposure limit);

LC50: (Lethal concentration, 50 percent kill);

LD50: (Lethal dose, 50 percent kill);

IARC: (International Agency for Research on Cancer);

EC50: (Median effective concentration);

BCF: (Bioconcentration Factor);

BOD: (Biochemical oxygen demand);

NOEC: (No observed effect concentration);

Material Safety Data Sheet

NTP: (US National Toxicology Program);

RTECS: (Registry of Taxie Effects of Chemical Substances);

IATA: (International Air Transport Association);

IMDG: (International Maritime Dangerous Goods);

TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations);

TOC: (Total Organic Carbon);

TSCA: (Taxie Substances Control Act of USA);

DSL: (the Domestic Substances List of Canada);

NDSL: (the Non-domestic Substances List of Canada)