



Material Safety Data Sheet

1. Product & Company Identification

Product:	Rechargeable LiPo Battery
Manufacturer:	Conrad Electronic SE
Nominal voltage:	11,1 V
Nominal capacity:	6400 mAh
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
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2. Hazards Identification

No harm at the normal use. If contact the electrolyte in the battery, reference as follows:

Classification of the substance or mixture

Classification according to GHS

Acute toxicity, Oral (Category 4)

Acute toxicity, Dermal (Category 3)

Skin, irritate (Category 1B)

Eyes, irritate (Category 1)

Label elements

Labelling according to Regulation (EC) No 1272/2008[CLP]

Signal word: Danger

Hazard statement(s): H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage
H302: Harmful if swallowed.

Precautionary statement(s):

Prevention: P280: Wear protective gloves/protective clothing/eye protection / face protection.

Response: P312: Call a POISON CENTER or doctor/ physician if you feel unwell.

P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Disposal:

P501: Dispose of contents/container in accordance with local/national regulations

Other hazards

No information available.

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3. Composition, Information on Ingredients

Composition	CAS No.	EC No.	Weight (%)
Lithium Cobalt Oxide	12190-79-3	235-362-0	30 - 45
PVDF	24937-79-9	200-867-7	0.8 - 1.2
Graphite	7782-42-5	231-955-3	16 - 22
Electrolyte	-	-	13 - 16
PP+PE	9003-07-0	-	1.5 - 2.7
Copper	7440-50-8	231-159-6	10 - 12
Aluminum	7429-90-5	231-072-3	5 - 7
Nickel	7440-02-0	231-853-9	0.1
SBR	9003-55-8	-	0.4 - 0.8
Carbon	1333-86-4	231-153-3	0.5 - 0.8

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.

Information for doctor:

Indication of any immediate medical attention and special treatment needed:

No further relevant information available.



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5. Fire Fighting Measures

Flammability: Not available.

Extinguishing media Suitable extinguishing agents

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

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.

Advice for firefighters Protective equipment:

Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

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

Environmental precautions

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

Steps to be taken in case material is spilled or released

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.

Waste disposal method

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

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.



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7. Handling and Storage

Handling

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 burns, 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 further relevant information available.

8. Exposure Controls/Personal Protection

Control parameters

Ingredients with limit values that require monitoring at the workplace:	
12190-79-3 Lithium Cobalt Oxide	
TLV (USA)	0.02 mg/m ³
MAK (Germany)	0.1 mg/m ³

Exposure controls

Personal protective equipment

General protective and hygienic measures

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.

Respiratory Protection

Use suitable respirator when high concentrations are present.

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9. Physical and Chemical Properties

Material	Appearance	Odor	Molecular Weight	Vapor Pressure
LiCoO ₂	Solid, Blue-Black Powder	Odorless	97.88	-
Carbon	Black Powder	Odorless	12.01	-
PTFE	Latex	Odorless	-	-
PVDF	Powder	Odorless	-	-
Copper	Metal	Odorless	63.55	-
Nickel	Metal	Odorless	58.69	-
Aluminum	Metal	Odorless	26.98	-
Electrolyte (EC/DEC/EMC/1molLiPF ₆)	Colorless Liquid, Volatile	With a mild organic odor	-	-

Material	Sublimating Point	FreezingPoint / Melting Point	Solubility in water	Density (Specific Gravity)
LiCoO ₂	-	>1000 °C (1280 °F)	Insoluble	-
Carbon	3000 °C or more	-	Insoluble	2.2 g/ml
PTFE	-	-	Soluble	-
PVDF	-	165 - 172 °C	Negligible	1.76 - 1.80 g/ml
Copper	-	1083 °C	Insoluble	8.96 g/ml
Nickel	-	1555 °C	Insoluble	8.91 g/ml
Aluminum	-	660 °C	Insoluble	2.7 g/ml
Electrolyte (EC/DEC/EMC/1molLiPF ₆)	126 °C	-	Partial	1.22 (20/20 °C) WATER=1



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10. Stability and Reactivity

Reactivity: Data not available.

Chemical stability: Stable.

Possibility of hazardous reactions: Data not available.

Conditions to Avoid

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

Incompatibilities

Oxidizing agents, acid, base.

Hazardous Combustible Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

Hazardous Polymerization

N/A.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

LD/LC50 Values relevant for classification:

Not available.

Primary irritant effect

No further relevant information available.

Sensitization:

No further relevant information available.

Additional toxicological information:

Toxicological, metabolism and distribution:

No further relevant information available.

Acute effects (acute toxicity, irritation and corrosivity):

No further relevant information available.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

No further relevant information available.



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12. Ecological Information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behaviour in environmental systems

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Ecological effects

Additional ecological information

General notes:

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

Other adverse effects:

No further relevant information available.

13. Disposal Consideration

Waste treatment methods

Recommendation:

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

Uncleaned packaging

Recommendation:

Disposal must be made according to official regulations.

14. Transport Information

According to the Packing Instruction 965~967 IATA DGR 55 Edition for transportation, or the special provision 188 of IMDG, or the <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (18).

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

Separate Lithium-ion batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

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



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15. Disposal Considerations

This Material Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

Composition	CAS#	TSCA	EC#	EINECS
Lithium Cobalt Oxide	12190-79-3	Listed	235-362-0	Listed
PVDF	24937-79-9	Listed	200-867-7	Listed
Graphite	7782-42-5	Listed	231-955-3	Listed
PP-PE	9003-07-0	Listed		Not Listed
Copper	7440-50-8	Listed	231-159-6	Listed
Aluminum	7429-90-5	Listed	231-072-3	Listed
Nickel	7440-02-0	Listed	231-853-9	Listed
SBR	9003-55-8	Listed		Not Listed
Carbon	1333-86-4	Listed	231-153-3	Listed

16. Additional Information

Abbreviations and acronyms

CLP: EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.

CAS: Chemical Abstracts Service (Division of the American Chemical Society).

ACGIH: American Conference of Governmental Industrial Hygienists

TLV: Threshold Limit Value

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods

LC50: lethal concentration, 50 percent kill

LD50: lethal dose, 50 percent kill

TWA: Time Weighted Average

TSCA: United States Toxic Substances Control Act Section 8(b) Inventory

EINECS: European Inventory of Existing Commercial Chemical Substances

Model: Recommendations on the Transport of Dangerous Goods Model

Regulations: Regulations