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

Item no.: 650006

Material Safety Data Sheet

1. Product & Company Identification

Product:	Lithium Metal Cell CR-P2, non-rechargeable
Nominal voltage:	6,0 V
Nominal capacity:	1400 mAh
Manufacturer:	Conrad Electronic SE
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date of issue:	26.09.2019

2. Components of the Battery

Component	CAS No	Content %
Manganese-Dioxide	1313-13-9	30 - 40
Lithium Metal	7439-93-2	2 - 4
Electrolyte (Organic Electrolyte Mixture)	-	10 - 14
Iron	7439-89-6	32 - 38
Carbon	7440-44-0	3 - 5
Polypropylene	9003-07-0	2 - 4
Polyethylene	9002-88-4	1 - 2
Others	-	3 - 4

Lithium Content 1.12g 3.02%

Batteries are neither chemical substance nor mixture, but products.

The chemicals are sealed in outercan to prevent from outflux in the metal steel case for durability.

No harm to health under normal usage and adequate transportation method.

This instruction states the potential danger generating from non-intended use, for the explanations of chemicals in the batteries, cautions for storage and regulations for transportation.

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3. Risk

Significant Risk

No reference

Peculiar Risk

No reference

General avoidable issues:

Chemicals in the steel can may leak without proper storage.

Rupture or fire may happen to battery if disposed in fire or placed over 100°C

Heat, rupture and fire may happen to battery if short-circiut caused by stack or mixture.

GHS classifications do not apply to our batteries.

4. First Aid Measures

Inhalation

Seek fresh air and immediately get medical attention after inhalating leaking component.

Skin Contact

Wash affected area with plenty of soap and water. If irritation develops, get medical attention.

Eye Contact

Flush with water for at least 15 minutes. If irritation develops, get medical attention.

Ingestion

Get medical attention immediately if ingestion.

5. Fire Extinction Measures

Fire extinguisher:

Carbon dioxide; fire foam; dry sand; water spray and powder etc.

Means of extinction:

Remove batteries to safe place to avoid fire spread. Use water, carbon dioxide, powder if the materials for packing is paper. Burning vapour may cause irritation to eyes, nose and throat. Hence, it is suggested put out the fire in the draught. Use mask when necessary.

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6. Measures for Leakage

If misuse the battery at application, the chemicals in steel can may vent. In such case, take measures below:

Health Cautions:

The electrolyte may not cause great damage to health as soon as inhalation or contact to skin, but it should be cleaned immediately, and fresh air would help.

Environmental Cautions:

Clean thoroughly, no significant damage to environment.

Measures/container for collection, neutralization and crimping:

Collect in an empty container and dispose according to regulations.

7. Storage

Caution:

Do not dispose batteries to fire in case of charge, short-circuit, disassembling, disformation or heat.

Do not stack or mix batteries.

Do not place batteries in metal container, metal sheet or antistatic materials.

Batteries should be changed at the same time when used in a multiple-cell applied device.

Stored in a dry and cool place with good ventilation.

Avoid water, snow, frost or condensation of moisture when packing.

Do not place batteries near heat or hot air outlet.

Do not expose batteries to sun directly.

Avoid condensation of moisture when transferring batteries from cold to hot place.

Provide several fire extinguishers in the warehouse.

8. Exposure Control and Protective Measures

No special protection tools needed for normal usage. In case of abnormal use in devices or appliances, electrolyte may leak and certain protection tools should be used as below:

Respiratory protective equipment:

Respirators (with apparatus respiratorius)

Hand protective equipment:

Synthetic rubber gloves

Eye protective equipment:

Protective spectacles

9. Physical/Chemical Property

States: Solid

Form: Dihedral

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10. Stability and Reactivity

Stability:

It is extremely stable for normal use.

Avoid Condition:

External short-circuit, deformation by press, excessive temperature (above 100°C, which may cause heat or fire), expose to sun directly or high humidity.

Avoid Substance:

Substance may cause short-circuit.

11. Toxicological Information

Chemicals are sealed in the steel can without danger.

The followings are toxicological information for materials of batteries for reference.

Component	Classification	Symptom
Manganese Dioxide	Acute Toxicity	Rabbit LDL0 (vein)=45mg/kg Mouse LD50 (subcutaneous)=422mg/kg
	Partially Affected	Irritation to eyes, nose, throat and skin.
	Chronic Toxicity or Long-Term Toxicity	Parkinson's central nervous syndrome may caused by longterm (at least 3 months) inhalation of dirt or gas.
Lithium Metal	Acute Toxicity	No reference
	Partially Affected	Chemical burning may occur in case of contact to skin or eyes.
Electrolyte	Acute Toxicity	No reference
	Partially Affected	A little irritation to eyes.

12. Environment Effects

Residual property/Resolvability

No reference

Soil Pollution

No reference

13. Disposal Considerations

Dispose of in a consistent manner according to the regulations.

For safety purpose, insulation measures are needed to avoid heat or rupture caused by short-circuit. Such as film on terminals, insulation bag or original package for packing .

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14. Transportation Information

Attention, the latest regulation shall prevail, and the specifications of transportation and its difference shall be confirmed with the carrier.

All single lithium-metal cells or battery packs are considered as Class 9 according to international standards as shown below. The transport of lithium-metal cells or battery packs should meet requirements defined in International Transport Regulations. All of our products (defined in chapter 1) and its packing forms meet the requirements of UN Manual of Test and Criteria, Part III, subsection.

Besides, the following transporation requirements shall be meet when delivery.

Air Transport

The battery conform to 968 Section IB or II defined in Packing Instruction of IATA-DGR. The product and its packing forms meet the requirements of Section IB or II, though the battery itself is considered as dangerous goods, it can be transported without applying containers defined as Class II.

Sea Transport

The battery conform to special regulation 188 and transport condition defined in IMDG-Code. It can be transported as non-dangerous goods.

UN No.	Proper Shipping Name/Description
UN 3090	Lithium Metal Batteries
UN 3091	Lithium Metal Batteries Contained in Equipment
UN 3091	Lithium Metal Batteries Packed with Equipment

Related Regulation

Transport from	Relevant agencies/Issued documents
Air Transport	ICAO / TI IATA/DGR
Sea Transport	IMO / IMDG Code
Land transport (within Europe)	RID, ADR
US/Internation	USDOT / DOT 49 CFR

UN: Recommendations on the transport of dangerous goods: Manual of Tests and Criteria 5th revised edition Amendment 1 [ST/SG/AC.10/11/Rev.5/Amend.1]:Part III, Subsection 38.3

*1 Dangerous Goods Regulations – 59th Edition Effective 1 January 2018: International Air Transport Association (IATA)/Packaging Instructions 968-970

*2 IMDG Code 38-16

*3 RID - COTIF 1999/Appendix C-RID/Article 5

*4 ADR - ADR/Part 3/CHAPTER 3.3/3.3.1/Clause188, 230, 238, 239, 310

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15. Regulations for Dangerous Goods

Related environment regulations for batteries: EU countries according to the Battery Directive 2006/66/EC, and other countries like China, Korea, brazil, North America or Canada have similar regulations.

16. Others

Reference

IATA DGR(Dangerous Goods Regulations), latest edition

Notice defined in air transport regulations for dangerous goods may cause explosion.

This instruction established based on the normal use of the battery, without any ensurance.