

1 Identification of the product and of the company undertaking

Product details

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| Product name: | 9S2P/N18650CR-35E PCM.KSK. |
| Part number: | 88030 718 513 |
| Electrochemical system | Lilon |
| Nominal Voltage: | 32,4V |
| Rated Capacity: | 226,80Wh |

Supplier details

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| Address | VRI GmbH Wilhelm-Maybach-Str. 4 73479 Ellwangen Germany |
| Emergency Phone Number | +49 7961 92288 65 |

General remark

This information is provided as a service to our customers. The details presented are in accordance with our present knowledge and experiences. They are no contractual assurances of product attributes.

Legal remark (EU)

These batteries are no *"substances"* or *"mixtures"* according to Regulation (EC) No 1907/2006 EC. Instead, they have to be regarded as *"articles"*, no substances are intended to be released during handling. Therefore, there is no obligation to supply a safety data sheet according to Regulation (EC) 1907/2006, Article 31.

Legal remark (USA)

Safety Data Sheets are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an *"article"*. According to OSHA, Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as *"articles"*, they are exempted from the requirements of the Hazard Communication Standard.

Material Safety Data Sheet

2 Hazards identification

The battery is sealed hermetically. Thus, the ingredients have no hazard potential, except the battery is violated or dismantled. If in case of mistreatment the ingredients are released, a spontaneously flammable gas mixture may be released under certain circumstances (measures according to sections 4 to 6).

Attention: If batteries are treated wrong the danger of burns or bursts occurs. Batteries must not be heated above 100 °C or incinerated. The battery contents must not get in contact with water. If the negative electrode gets in contact with water or humidity hydrogen gas is formed, which may inflame spontaneously.

3 Composition/information on ingredients

Ingredients

| Content | CAS no. | Chemical Formula | Chemical name |
|--------------|-------------|---|---------------------------------------|
| 37.2 % | 182442-95-1 | LiNiCoMnO2 | Lithium nickel cobalt manganese oxide |
| 17 % | 7782-42-5 | C | Graphite |
| 2.1 % | 10097-28-6 | SiO | SiO |
| 8.7 % | 7440-50-8 | Cu | Copper |
| 3.6 % | 7429-90-5 | Al | Aluminium |
| 1.6 % | 21324-40-3 | F ₆ LiP | Electrolyte |
| 1.7 % | 96-49-1 | C ₃ H ₄ O ₃ | Electrolyte |
| 0.7 % | 623-53-0 | C ₄ H ₈ O ₃ | Electrolyte |
| 6.3 % | 616-38-6 | C ₃ H ₆ O ₃ | Electrolyte |
| 1.7 % | 9002-88-4 | PE | Separator |
| 0.4 % | 1344-28-1 | Al ₂ O ₃ | Separator |
| 14.9 % | 7439-89-6 | Fe | Steel can |
| 0,4 % | 7440-02-0 | Ni | Steel can |
| 0.4 % | 9003-07-0 | PP | Cap |
| 0.2 % | 7440-02-0 | Ni | Cap |
| 1.6 % | 7439-89-6 | Fe | Cap |
| 0.7 % | 7429-90-5 | Al | Cap |
| 0.8 % | 25038-59-9 | C ₁₀ H ₈ O ₄ | Tube |
| Not detected | 7439-92-1 | Pb | |
| Not detected | 7440-43-9 | Cd | |
| Not detected | 7439-97-6 | Hg | |

4 First-aid measures

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| After inhalation | Fresh air. Seek for medical assistance and ventilate the contaminated area |
| After skin contact: | Remove solid particles immediately. Flush affected areas with plenty of water (at least 15 min). Remove contaminated cloth immediately. Seek for medical assistance. |
| After eye contact | Flush the eye gently with plenty of water (at least 15 min). Seek for medical assistance. |
| After ingestion of battery components: | Drink plenty of water. Avoid vomiting. Seek for medical assistance. No trials for neutralization |

5 Fire-fighting measures

Extinguish with plenty of water, dry powder extinguishers, sands, or earth. Combustion and decomposition products include carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

6 Accidental release measures

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| Person related measures | Wear personal protective equipment adapted to the situation (protection gloves, cloth). |
| Environment protection measures | In the event of battery rupture, prevent skin contact and collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters. |
| Treatment for cleaning | If battery casing is dismantled, small amounts of electrolyte may leak. Package the battery tightly including ingredients together with lime, sand, earth or rock salt. Then clean with water. |

7 Handling and storage

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| Guideline for safe handling | <p>Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types.</p> <p>Keep batteries away from children. Keep small cells and batteries which are considered swallowable out of the reach of children.</p> <p>For devices to be used by children, the battery casing should be protected against unauthorized access.</p> <p>Unpacked batteries shall not lie about in bulk.</p> <p>In case of battery change always replace all batteries by new ones of identical type and brand.</p> <p>Do not swallow batteries. Swallowing may lead to burns, perforation of soft tissue, and death.</p> <p>Severe burns can occur within 2 h of ingestion. In case of ingestion of a cell or battery, seek medical assistance promptly.</p> |
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- Do not throw batteries into water.
- Do not throw batteries into fire.
- Avoid deep discharge.
- Do not short-circuit batteries.
- Use recommended charging time and current.
- Do not open or disassemble batteries.

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| Environmental conditions | Store in a cool and dry environment (less than 35 °C and less than 85 % relative humidity for storage) Avoid large temperature changes. Do not store close to heating devices. Avoid direct sunlight. At higher temperature the electrical performance may be reduced. Storage of unpacked batteries can cause short circuit and heat generation. |
| Storage of large amounts | If possible, store the batteries in original packaging (short circuit protection). A fire alarm is recommended. |

8 Exposure controls/personal protection

There is no protection required under normal conditions. In case of leakage, ventilation is required. Respirators, eye protection, protective gloves, and protective clothes are required when dealing with fire and leakage.

9 Physical and chemical properties

Not applicable if closed.

10 Stability and reactivity

Cells are stable under normal conditions. The following substance may appear in case of fire or leakage: organic carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

11 Toxicological information

Under normal conditions (discharge) release of ingredients does not occur. Avoid prolonged deep discharge. If accidental release occurs see information in sections 2 to 4 and 6.

Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up. See section 4.

12 Ecological information

There is no influence on ecology or the environment when the cells are used and disposed of properly. Do not let cells' internal components enter the marine system. Avoid releasing to waterways, wastewater or groundwater.

13 Disposal considerations

Do not treat discarded cells as ordinary trash. Recycling is recommended and required by law in many jurisdictions. Do not incinerate the cells. Leaking or damaged cells should be treated as chemical waste.

- Storage of batteries in original packaging
- Coverage of the terminals
- Embedding in dry sand

European Union

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC. Customers find detailed information on disposal in their specific countries using the web site of the European Portable Batteries Association (www.epbaeurope.net/legislation-national.html).

Importers and users outside EU should consider the local law and rules.

USA

These Li-Ion batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling by Call2Recycle, Inc. Please go to their website at www.call2recycle.org for additional information.

14 Transport information

General considerations

These batteries are considered to be UN 3480 Lithium Ion Batteries and are tested according to subsection 38.3 of the "UN Manual of Tests and Criteria". Test results as well as other relevant information required for transportation are given in dedicated "Supplier's Test Summaries".

During the transportation of large amounts of batteries by ship, trailer or railway, do not store them in places of high temperature and do not allow them to be exposed to condensation. During the transportation do not allow the packaging to be damaged, as a damage of the packaging may cause fire. In the event packaging is damaged, special procedures must be used including inspection and repackaging if necessary and handle with care.

Compilations of transport requirements for Lithium batteries can be found in:

<https://www.lithium-batterie-service.de/en/>

<https://www.iata.org/whatwedo/cargo/dgr/Documents/lithium-battery-shipping-guidelines.pdf>

Each battery is manufactured under a quality management program according to IATA DGR clause 3.9.2.6, ADR clause 2.2.9.1.7 e), and IMDG code clause 2.9.4.5.

15 Regulatory information

Marking consideration (EU)

Marking consideration

European Union: According to "DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC" the batteries have to be marked with the crossed wheel bin symbol. According to Dangerous Goods Regulations (see section 14) battery packs have to be marked with the Watt-hour rating

Water hazard class

The regulations of the German Federal Water Management Act (WHG) are not applicable as these batteries are articles and not substances, thus there is no risk of water pollution, except the batteries are violated or dismantled.

16 Other information

This document is provided for technical information only. The information is provided in good faith and is believed to be accurate as of the date of preparation. VRI makes no warranty, either express or implied, with respect to this information and disclaims all legal responsibility from reliance on it.

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| Note | Date of issue of the transport regulations: ADR 2023, RID 2023, IATA DGR 2024 (65th edition), IMDG Code 2023 (inc. Amdt 41-22) latest covered modification of the European Battery Directive 2006/66/EC: Directive (EU) 2018/849. |
| RoHS | See special Declaration |
| REACH | See special Declaration |
| Issued by | VRI GmbH Quality / Environmental Management |
| Issued date | 25.09.2024 |