Safety Data Sheet MSDS 2.001.060
Rechargeable Lithium-Ion Pouch Cell in Flashlight

1 Identification of the product and of the company

Product details

Trade name VARTA Rechargeable Lithium-Ion

Electrochemical system: Lithium ion

This MSDS applies to the battery cell model INR186500 which is contained in Varta Portable Light type 18647

The values listed for energy and voltage are given for reference only; they are not contractual assurances of product attributes and may differ from values given in specifications, data sheets or other documents or on the products.

Type	Energy per cell	Nominal voltage per cell
INR18650	18.7 Wh	3.6 V

Supplier details

Address: VARTA Consumer Batteries GmbH & Co. KGaA
Alfred-Krupp-Str. 9
73479 Ellwangen
Germany

Emergency Phone Number: +49 7961 921 110 (VAC)

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) No 1907/2006, Article 31.

The headings used in this safety data sheet are in line with Annex II of Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2020/878.

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.

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.	EC no.	Material
25 – 35 %	182442-95-1	695-690-9	Cobalt lithium manganese nickel oxide
< 1 %	61789-96-6	612-382-1	Rubber, styrene-butadiene, fume
0 – 5 %	24937-79-9	607-458-6	Ethene, 1,1-difluoro-, homopolymer
2 – 10 %	7429-90-5	231-072-3	Aluminium
2 – 10 %	7440-50-8	231-159-6	Copper
10 – 30 %	7440-44-0	231-153-3	Carbon
10 – 20 %	21324-40-3	244-334-7	Lithium hexafluorophosphate
< 5 %	-	-	Stainless steel, Nickel and inert materials

During charge process a lithium carbon intercalation phase is formed, which is highly flammable and corrosive, but not released under the circumstances of normal usage.

Substances relevant for Battery Regulation 2023/1542

Content	CAS no.	EC no.	Material
< 0.0100 %	7439-92-1	231-100-4	Lead
< 0.0001 %	7440-43-9	231-152-8	Cadmium
< 0.0001 %	7439-97-6	231-106-7	Mercury (none intentionally introduced, see section 12)

4 First-aid measures

After inhalation:	Fresh air. Seek for medical assistance.
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.

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After ingestion of battery components:	Drink plenty of water. Avoid vomiting. Seek for medical assistance. No trials for neutralization.

5 Fire-fighting measures

Suitable extinguishing media:	Metal fire extinction powder, rock salt or dry sand shall be used. In case only water is available, it can be used in large amounts.
Extinguishing media with limited suitability:	Carbon dioxide (CO_2) is not suitable. Water in small quantities may have adverse effects.
Special protection equipment during fire-fighting:	Firefighting clothing and self-contained breathing apparatus.
Special hazard:	Cells may explode and release metal parts. At contact of electrolyte with water traces of hydrofluoric acid may be formed. In this case avoid contact and take care for good ventilation. At contact of charged anode material with water extremely flammable hydrogen gas is generated.
Attention:	Do not let used extinguishing media penetrate into surface water or ground water. If necessary, thicken water or foam with suitable solids. Dispose of properly.

6 Accidental release measures

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

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7 Handling and storage

Guideline for safe handling:	Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children.
Environmental conditions:	For normal storage, the temperature should be between +10 °C and +25 °C and never exceed +35 °C. For short exposition (e.g. during transport) tempearature may be in the range of –20 °C to +60 °C. Extremes of humidity (over 95 % and below 40 % relative humidity) for sustained periods should be avoided since they are detrimental to both batteries and packaging. Batteries should therefore not be stored next to heating devices, nor in direct sunlight. Avoid large temperature changes. At higher temperature the electrical performance may be reduced. Refer to the cell data sheet for more details.
Storage category according to TRGS 510:	It is recommended to consider the "Technical Rule for Hazardous Substances TRGS 510 - Storage of hazardous substances in nonstationary containers" and to handle lithium ion batteries according to storage category 11 ("combustible solids").
Storage of large amounts:	Follow the recommendations of the German Insurance Association (GDV - "Gesamtverband der Deutschen Versicherungswirtschaft e.V.") concerning lithium batteries: VdS 3103. In case of storage of large amounts (used storage volume > 7 m^3 and/or more than 6 pallets) batteries shall be stored in fire-resistant or separated rooms or areas (e.g. warehouse or container for hazardous materials). Mixed storage with other products is not allowed. The storage area shall be monitored by an automatic fire detection system, connected to a permanently manned place. A fire-extinguishing system shall reflect the extinguishing agents mentioned in section 5.

8 Exposure controls/personal protection

Keep away from heat and open flame. Store in a cool, dry place. Under normal conditions (during charge and discharge) release of ingredients does not occur.

9 Physical and chemical properties

Not applicable if closed.

10 Stability and reactivity

None during normal operation. Avoid exposure to heat, open flame, short circuit and water.

11 Toxicological information

Under normal conditions (during charge and discharge) release of ingredients does not occur. In case of accidental release 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.

https://www.poison.org/battery/guideline

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12 Ecological information

VARTA Rechargeable Lithium-Ion do not contain heavy metals as defined by Battery Regulation 2023/1542; they comply with the chemical composition requirements of this Directive.

Mercury has not been "intentionally introduced (as distinguished from mercury that may be incidentally present in other materials)" in the sense of the U.S.A. "Mercury-Containing and Rechargeable Battery Management Act" (May 13 1996).

13 Disposal considerations

Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissectec, pierced, crushed or treated similary.

Recycle or dispose of in accordance with government, state and local regulations.

European Union

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the European Battery regulation 2023/1542 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).

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

14 Transport information

VARTA Rechargeable Lithium-Ion 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" for compliance with the requirements of special provisions ADR 188, IMDG 188, as well as the requirements of DOT / 49 CFR § 173.185, and the requirements of IATA DGR packing instruction 965. Test results as well as other relevant information required for transportation are given in dedicated "Supplier's Test Summaries".

Please note that for some products state of charge and VARTA packaging are not designed for air transport in bulk; this does not affect air transport of batteries packed with equipment or contained in equipment.

Transportations of cells or batteries packed with equipment or contained in equipment have to follow the appropriate regulations for UN 3481.

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.

Code of practice for packaging and shipment of secondary batteries given in IEC 62133: The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

Compilations of transport requirements for Lithium batteries can be found in:
https://www.lithium-batterie-service.de/en/
https://www.iata.org/en/programs/cargo/dgr/lithium-batteries/

Each cell or 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.

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15 Regulatory information

Marking consideration

Lithium Ion Cells whch are contained in Varta Flashlights are conform to the requirements of the EU Battery Regulation (EU) 2023/1542 and are thus marked with the CE symbol. Due to the size of the battery it is not possible to print the CE marking (miniumum size of 5 mm) on the battery itself, therefore it is affixed to the packaging and to the documents accompanying the battery.

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 bin. Due to the size of the products the battery need not be marked but a symbol measuring at least 1 × 1 cm shall be printed on the packaging.

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 VARTA Rechargeable Lithium-Ion are articles and not substances, thus there is no risk of water pollution, except the batteries are violated or dismantled.

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16 Other information

Covered regulations:	Latest covered modifications of transport regulations: • Air: IATA DGR 2024 (65th edition) • Road: ADR 2023 • Sea: IMDG Code 2022 (inc. Amdt. 41-22) • Rail: RID 2023 Latest covered modification of the Battery Regulation 2023/1542: • Directive (EU) 2023/1542
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