Safety Data Sheet MSDS 2.001.054
Lights

1 Identification of the product and of the company

Product details

Trade name VARTA Portable Lights

Electrochemical system: Lithium Ion

This MSDS applies to the battery cell model LIR2450 which is contained in Varta Portable Light type 17680.

Type	Description
LIR2450	Rechargable Lithium-ion Battery 110 mAh

Supplier details

Address: VARTA Consumer Batteries GmbH & Co. KGaA
Alfred-Krupp-Str. 9
73479 Ellwangen
Germany
Emergency Phone Number: +49 7961 921 110 (VAC)

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) 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.

2 Hazards identification

This product is a battery. Intended use of the product should not result in exposure to the chemical substance. 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
66 %	--	--	304BA /Stainless Steel)
15 %	12190-79-3	235-362-0	Cobalt lithium
9 %	7782-42-5	231-955-3	Graphite
8 %	96-49-1	202-510-0	1,3-Dioxolan-2-one
2 %	9003-07-0	618-352-4	Polypropylene

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 Directive 2006/66/EC

Content	CAS no.	EC no.	Material
< 0.0040 %	7439-92-1	231-100-4	Lead
< 0.0005 %	7439-97-6	231-106-7	Mercury
< 0.0020 %	7440-43-9	231-152-8	Cadmium

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4 First-aid measures

After inhalation:	Remove victim to fresh air. Administer artificial respiration if breathing is difficult. Seek for medical assistance.
After skin contact:	Remove solid particles immediately. Flush affected areas with plenty of water and soap. Remove contaminated cloth and shoes immediately. Wash clothing and shoes before reuse. Seek for medical assistance.
After eye contact:	Flush eyes with plenty of water several minutes while holding eyelids open. 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

Suitable extinguishing media:	Use extinguishing agent suitable for local conditions and the surrounding environment, such as dry powder, CO2
Fire Fighting Instructions:	Fight the fire in a defensive mode, while exiting the area. When using a CO2 fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO2 extinguishing agent.
Special protection equipment during firefighting:	Firefighting clothing and self-contained breathing apparatus.
Special hazard:	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 spakrs when subjected to high temperature (> 150°C), when damaged or abused (e.g. mechanical damage or electrical overcharging), may burn rapidly with flare-burning effect, may ignite other batteries in close proximity. 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. Burning batteries may emit acrid smoke irritating fumes, and toxic fumes of fluoride.
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 cell casing is dismantled, small amounts of electrolyte may leak. Pack the cell or its Remains including ingredients as described above. 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. Keep small cells and Batteries which are considered swallowable out of the reach of children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion. In case of ingestion of a cell or battery, seek Medical assistance promptly. 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.
Supply to private end users:	In case the products are supplied to private end users packed with equipment or contained in Equipment it is strongly recommended to follow UL product and instruction manual requirements. The product is required to be marked with a graphical symbol that alerts the user to refer to the instruction manual. The instruction manual itself is required to contain • an attention word, such as "Caution", "Warning", or "Danger", • a brief description of possible hazards associated with mishandling of the battery, such as burn hazard, fire hazard, explosion hazard, • a list of actions to take to avoid possible hazards, such as "do not crush, disassemble, dispose of in fire", or similar actions, • instructions regarding replacement batteries if the batteries are replaceable by the user, • a warning marking with text to alert the user of the potential chemical burn hazard associated with coin/button battery ingestion, • an instruction as to the presence of a coin/button cell battery, • possible effects of battery ingestion, • an instruction to keep batteries away from children, and • an advice to seek immediate medical attention if it suspected that batteries have either been swallowed or placed inside any part of the body. A lithium ion battery pack shall be marked with the following or equivalent: "CAUTION: Risk of fire and burns. Do not open, crush, heat above manufacturer's specified maximum temperature or incinerate. Follow manufacturer's instructions".
Further advice for health professionals:	https://www.poison.org/battery/guideline
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) temperature 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 m3 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 fireextinguishing system shall reflect the extinguishing agents mentioned in section 5.

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8 Exposure controls/personal protection

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

Dangerous reactions: When heated above 100 °C the risk of rupture occurs.

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. See section 4.

12 Ecological information

VARTA portable flashlights do not contain heavy metals as defined by the European directives 2006/66/EC Article 21; 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

Not applicable if closed.

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).

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

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14 Transport information

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.

15 Regulatory information

Marking consideration (EU)

According to Commission Regulation (EU) No 1103/2010 portable secondary (rechargeable) batteries and accumulators shall be marked with a capacity marking, except those which are incorporated or designed to be incorporated in appliances before being provided to end-users, and not intended to be removed.

Rechargeable Lithium ion batteries, which contain electronic modules (e.g. PCM) and which are subjected to the EMC directives 2004/108/EC or 2014/35/EU (as they are end-user replaceable devices), must undergo a EU conformity assessment and must wear the CE marking.

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 portable flashlights are articles and not substances, thus there is no risk of water pollution, except the batteries are violated or dismantled.

16 Other information

Hazard statements for battery

Code	Phrase
H302	Harmful if swallowed.
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation.

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Covered regulations:	Latest covered modifications of transport regulations: • Air: IATA DGR 2023 (64th edition) • Road: ADR 2023 • Sea: IMDG Code 2020 (inc. Amdt. 40-20) • Rail: RID 2023 • UN38.3 Latest covered modification of the European Battery Directive 2006/66/EC: • Directive (EU) 2018/849
Issued by:	VARTA Microbattery GmbH Product Compliance
Contact:	https://www.varta-ag.com/en/about-varta/contact

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