

Safety Data Sheet

1. IDENTIFICATION

Chemical System: Lithium-Iron-Disulfide Batteries \leq 1g Lithium

VARTA Consumer Batteries
GmbH & Co. KGaA

Alfred-Krupp-Str. 9, 73479 Ellwangen/Germany
Phone ++49 (0) 7961 / 83-0
Fax ++49 (0) 0800-827-8274

Emergency Telephone Number: ++49 (0) 911 / 65372260

2. HAZARDS IDENTIFICATION

The batteries described in this Safety Data Sheet are sealed and are not harmful, as long as they are used in compliance with the manufacturer instructions. The content of the battery housing does not create a hazard, as long as the integrity of the battery housing is not affected by abuse (mechanical, thermal, electrical). Fire, explosion and severe, burn hazard in such abuse conditions may occur.

Warning:

Do not charge, short circuit, puncture, deform, disassemble, heat above 85 °C, incinerate or expose contents to water. Keep batteries away from small children. International Standard IEC 60086-4 contains more detailed information on safety of lithium batteries.

GHS Classification: N/A

3. COMPOSITION / INFORMATION on INGREDIENTS

Substance	Approximate percent of total weight
Steel	15 - 25
Plastik	< 20
Dioxolan	1 - 9
Iron Disulfide	25 - 40
Graphit	1 - 5
Mercury (Hg)	< 0,0005
Lead (Pb)	< 0,004
Cadmium (Cd)	< 0,002

4. FIRST AID MEASURES

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Contact to internal battery content:

- ▶ **Skin:** Remove contaminated clothes and shoes immediately. Flush affected areas with soap and plenty of water (at least 15 minutes). Seek for medical assistance.
- ▶ **Eyes:** Do not rub eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek for medical assistance.
- ▶ **Inhalation:** Immediately leave the room. Provide fresh air and seek medical attention.
- ▶ **Ingestion:** Drink plenty of water. Avoid vomiting. No trials for neutralization. Seek for medical assistance.

5. FIRE – FIGHTING MEASURES

- Suitable extinguishing media: In case of fire where lithium batteries are present, flood area with water or smother with a Class D fire extinguishant appropriate for lithium metal, such as Lith-X. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving lithium batteries can be controlled by flooding with water. However, the contents of the battery will react with water and form hydrogen gas. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended. A smothering agent will extinguish burning lithium batteries.
- Extinguishing media with limited Suitability: Water in small quantities may have adverse effects.
- Special protection equipment during fire-fighting: Contamination cloth including 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 off properly.

6. ACCIDENTAL RELEASE MEASURES

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When the battery housing is damaged, small amounts of electrolyte may leak. Seal battery air tight in a plastic bag, adding some dry sand, chalk (CaCO₃) or lime (CaO) powder or Vermiculite. Electrolyte traces may be wiped off dryly using household paper. Rinse with water afterwards.

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7. HANDLING AND STORAGE

Guideline for safe handling:	Do not short-circuit batteries. Damaging a lithium battery may result in an internal short circuit.
Storage:	Store preferably cool (below 30 °C) and dry, with no major temperature changes. Do not store near heating elements, no longer direct Expose to sunlight. Higher temperatures can reduce the lifespan of the batteries.
Charging:	This battery is manufactured in a charged state. It is not designed for recharging.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory protection.	Not necessary with normal use of batteries.
Hand protection:	Not necessary with normal use of batteries. For spilled batteries coated gloves use.
Eye protection:	Not necessary with normal use of batteries. When handling batteries with leaking batteries, wear protective goggles.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Not applicable if closed.

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10. STABILITY AND REACTIVITY

May rupture violently when heated above 100 °C or when charged.

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11. TOXIOLOGICAL INFORMATION

not applicable

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12. ECOLOGICAL INFORMATION

not applicable

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13. DISPOSAL CONSIDERATIONS

In accordance with appropriate national regulations.

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14. TRANSPORT INFORMATION

Lithium-Iron-Disulfide Batteries (UN3090)

which we deliver to our customers are subject to the Dangerous Goods Regulations. Reliefs during transport can be applied by following the special conditions mentioned below.

Air Transport: IATA Dangerous Goods Regulations, 63rd Edition, UN 3090 Packing Instruction 968 Section IA – IB - II
UN 3090 only be flown on CARGO machines (CAO). FORBIDDEN on PAX (Passenger- and Cargo Aircraft)

Sea transport: IMDG Amendment 40-20, special provision 188/230, packing instruction 903

Road / rail transport: ADR / RID 2021 Special provision 188/230 and packing instruction 903

Further information Tel +49 911 65372260 within USA: Tel +18004249300

Based on the tests performed, the requirements of the UN Manual of Test and Criteria, Part III, sub-section 38.3 are met.
All of these batteries are carefully packaged, labelled, and thus provide suitable protection to prevent short circuits.
The shipping documentation meets the relevant specifications.

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15. REGULATORY INFORMATION

not applicable

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16. OTHER INFORMATION

For lithium batteries in general, the safety standard IEC 60086-4 applies. It also contains detailed recommendations for device manufacturers and users