

cNODE transponder battery – battery safety data sheet



KONGSBERG

SECTION 1: Identification

The specification describes the technical parameters for the battery. The battery is custom made. The battery is a solid and sealed unit with a hard surface. The battery cannot be opened to reveal the individual cells.

Battery name: L14.4 (48) Maxi **Part number:** 319554

Battery name: L14.4 (48) Maxi Exd **Part number:** 355324

Battery name: L14.4 (24) Midi **Part number:** 347563

Manufacturer: Kongsberg Discovery AS

Address: Strandpromenaden 50, 3190 Horten, Norway

Telephone: +47 33 03 24 07 (24 h)

E-mail: support.hpr@kd.kongsberg.com

Web: <https://www.kongsberg.com/discovery>

SECTION 2: Hazards identification

The battery is not labelled with a hazmat label. It is not classified as dangerous or hazardous if used undamaged and as intended, and is therefore exempt from classification and labelling under the GHS (Globally Harmonized System of Classification and Labelling of Chemicals). Do not open, disassemble, crush or incinerate the battery. The battery contains dangerous chemicals. Exposure to the chemicals contained within the battery cells could be harmful. The battery cells include a barrier, preventing exposure to the user and environment. The battery cells are not classified as hazardous according to Regulation (EC) No. 1272/2008. The chemicals in the battery cells are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact. The electrolyte solution can be corrosive and may cause irritation and burns. Other hazards include:

External fire: Internal pressure and thermal runaway may be the consequences if the cells inside the battery are exposed to temperatures above 85 °C.

Internal short circuit: Internal short circuit in a cell. Destruction of the separator can cause a short circuit between the anode and cathode. Thermal runaway and fire is possible.

Water ingress: Internal pressure, thermal runaway and chemical reactions may be the consequence.

The transponder might be fitted with a pressure relief valve at the bottom of the unit. The pressure relief valve protects the transponder by preventing overpressure from building up inside the transponder. In the event of a hazardous battery condition resulting in an overpressure condition, the pressure valve will automatically open and release harmful gases and chemicals. The release of harmful gases and chemicals will continue until the chemical reactions taking place inside the battery have run their course and stop naturally. Products generated by the chemical reactions taking place inside the battery may clog the pressure

relief valve and prevent it from functioning correctly.

SECTION 3: Composition

The battery is solid with a hard surface. A battery pack consists of a number of individual cells electrically connected in both series and parallel. Battery packs vary in number of cells and capacity. All transponder batteries are protected against short circuits (circuit breakers) and reverse current (diodes). The lithium metal cells have the following chemical formula:

Lithium thionyl chloride — Li/SOCl_2

Negative electrode: Lithium

Positive electrode: Carbon

Electrolyte: A solution of lithium tetrachloroaluminate (LiAlCl_4) in thionyl chloride.

In case of hazardous events, the harmful gases are thionyl chloride (SOCl_2), sulphur dioxide (SO_2), hydrogen sulphide (H_2S), hydrogen chloride (HCl) & chlorine (Cl_2).

Battery identification

(1) Battery name: L14.4 (48) Maxi; Battery weight: 6.5 kg; Lithium weight: 183 g; Part number: 319554

(2) Battery name: L14.4 (48) Maxi Exd; Battery weight: 6.5 kg; Lithium weight: 183 g; Part number: 355324

(3) Battery name: L14.4 (24) Midi; Battery weight: 4.0 kg; Lithium weight: 92 g; Part number: 347563

Refer to the Material Safety Data Sheet (MSDS) provided by the cell manufacturer for more information on the cells in the sealed battery pack.

Manufacturer: Saft

Cell type: LSH 20

Web: <https://www.saftbatteries.com/>

SECTION 4: First aid measures

The battery will release toxic fumes if incinerated or exposed to fire. If subjected to gas from a burning battery, remove the source of contamination or move yourself and any victims to fresh air. Seek medical advice.

Inhalation: The chemicals are lung irritant. Avoid inhaling any vented gases. Remove the victim and yourself from exposure. Rest and keep warm. If breathing is difficult, seek emergency medical attention.

Skin contact: The chemicals are skin irritant. Rinse immediately with a lot of water and soap for at least 15 minutes. Wipe immediately away excess material with waterless hand cleaner. Remove contaminated clothing and wash it thoroughly before reuse.

Eye contact: The chemicals are eye irritant. Flush immediately with a lot of clear tepid water for at least 15 minutes.

Ingestion: Exposure to the chemicals may cause tissue damage to throat and gastro/respiratory tract if swallowed. If ingested, rinse mouth and surrounding area with tepid water. Dilute by drinking plenty of water. Seek medical advice.

SECTION 5: Firefighting measures

The transponder is designed to withstand damage to the internal battery pack. Non-combustible material is used. In case of fire, move the battery away from the fire area if you can do it without compromising your own safety. Extreme mechanical abuse to the battery may result in a ruptured seal and exposure. The individual cells in the battery pack contain a combustible liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures ($>150\text{ °C}/302\text{ °F}$), when damaged or abused. A burning battery can ignite other batteries in close proximity. Suitable extinguishing media are dry chemical, CO_2 , water spray or regular foam. Cool down the battery/transponder with plenty of cold water. The interaction with water or water vapour and exposed lithium hexafluorophosphate (LiPF_6) may result in the generation of hydrogen and hydrogen fluoride (HF) gas. Contact with battery electrolyte may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation. Don a self-contained breathing apparatus (SCBA). In case of an external fire, always remove transceiver units and lithium batteries.

SECTION 6: Accidental release measures

During normal operation, accidental release measures are not applicable. Extreme mechanical abuse to the battery may result in a ruptured seal and exposure. As an immediate precaution, isolate the spill or leak area for at least 25 metres (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind, and keep out of low areas. Ventilate closed areas before entering. Wear adequate personal protective equipment (PPE). Prevent material from contaminating soil and from entering sewers or waterways. Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up the spills immediately. Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of it ac-

cording to relevant regulations. Scrub the area with detergent and water; collect all contaminated water for proper disposal.

SECTION 7: Handling and storage

Do not open, disassemble, crush or incinerate the battery.

- (1) Do not expose the battery to water, sea water or other high-conductivity liquids.
- (2) Avoid mechanical or electrical abuse.
- (3) Do not expose the battery to temperatures outside the range of -40 °C – +80 °C.
- (4) Store in a dry location.
- (5) Do not expose the battery to direct sunlight during storage.
- (6) Keep out of the reach of children.

The recommended relative air humidity during storage is 40–70 %. To minimize adverse effects on battery performance, it is recommended that the battery is stored at room temperature (25°C ± 5°C). Storage outside the recommended temperature range may shorten the service life. The storage room must be properly ventilated. It must be equipped with sturdy racks with dedicated cradles for short-term storage of the batteries. The racks must prevent the battery terminals from coming into contact with a conductive material and short-circuiting the battery. For long-term storage, the battery must always be stored in its shipping carton. The batteries must be easy to remove in the event of a fire. The room must be designated and clearly marked as a storage area and access should be restricted. The room must not be used as a general rest or work area. The storage room must have a sprinkler system or a fire station. A suitable fire hose (with water) must be placed outside or near the room.

SECTION 8: Exposure control and personal protection

Airborne exposures to hazardous substances are not expected when the battery is undamaged and used as intended. Personal protective equipment (PPE) is not required when the battery is undamaged and used as intended. Wear personal protective equipment if the battery is damaged and there is a risk of exposure to the chemicals inside. In the event of fire or physical damage to the battery, follow the mandatory rules for personal protection.

Fire or explosion: Don a self-contained breathing apparatus (SCBA).

Exposure to harmful gas: Chemical-resistant gloves and safety glasses

SECTION 9: Physical and chemical properties

The battery is a solid and sealed unit with a hard surface. There is no risk for exposure to the chemicals inside an undamaged battery during normal operation and transportation. The battery cannot be opened to reveal the individual cells. Refer to the Material Safety Data Sheet (MSDS) provided by the cell manufacturer for more information on the cells in the sealed battery pack.

Cell manufacturer: Saft

Web: <https://www.saftbatteries.com/>

SECTION 10: Stability and reactivity

The battery is stable. No specific handling requirements apply. Avoid exposing the battery

to fire or temperatures above 80 °C. Do not disassemble, crush, short or install the battery with incorrect polarity. Avoid mechanical or electrical abuse. Do not immerse in seawater or other high conductivity liquids. The battery will release toxic fumes if incinerated or exposed to fire. Breaching of the individual cell enclosure may lead to generation of hazardous fumes which again may include extremely hazardous hydrofluoric acid (HF).

SECTION 11: Toxicological information

Acute oral, dermal and inhalation toxicity data are not available for this battery. Risk of irritation occurs only if the battery is abused to the point of breaking the container and opening it to reveal the individual cells. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

SECTION 12: Ecological information

The battery pack has no environmental impact provided it is disposed of in accordance with local regulations and/or laws.

SECTION 13: Disposal considerations

Adhere to applicable laws, regulations and guidelines when disposing of the batteries. A lithium thionyl chloride battery does not contain any heavy metals, and is therefore not regarded as special waste (it contains only biodegradable parts). A used lithium battery can contain a significant amount of residual energy. Residual energy may cause the battery to explode if improperly disposed of. Used batteries must therefore be handled with the same care as new ones. For safe disposal, contact the nearest local company that has been approved to collect and dispose of lithium batteries.

SECTION 14: Transport information

The cNODE transponder battery must be transported in accordance with applicable laws, regulations and guidelines, including those governing the transportation of dangerous goods by all modes of transportation. The battery is certified according to UN 38.3.

Shipment of transponder: Each cNODE transponder is transported as a closed and sealed unit, and must not be opened by unauthorized personnel. The cNODE transponder must be shipped in accordance with the prevailing national regulations; UN 3481 PI 967 Section II, Miscellaneous (Lithium Ion batteries included in equipment).

Shipment of separate battery: If the battery is shipped separately, the prevailing national regulations that apply are: UN 3480 PI 965 Section IB, Miscellaneous (Lithium Ion battery).

For all shipments – cNODE transponder and separate batteries –, use lithium battery handling label as specified in the additional requirement of Section II of packing instructions 965, 966 and 967. Transport identification codes:

Aircraft: IATA DGR

Sea transport: IMDG

Railway: RID

Road transport: ADR

Damaged transponders that are returned to the manufacturer for repair must be transported without batteries. Damaged or spent

batteries that have been recalled by the manufacturer for safety reasons must not be transported by air.

SECTION 15: Regulatory information

Not applicable.

SECTION 16: Other information

The battery manufacturers' safety data sheets (MSDS) are available on their websites.

Manufacturer: Saft

Web: <https://www.saftbatteries.com/>