
cNODE MiniS Transponders



KONGSBERG

Battery safety data sheet

SECTION 1: Identification

The specification describes the technical parameters for the battery.

The cNODE MiniS contains a custom made 58 Wh Li-Ion battery.

- **Product name:** cNODE MiniS battery
- **Part number:** 396782
- **Manufacturer:** Kongsberg Maritime AS
- **Address:** Strandpromenaden 50, 3190 Horten, Norway
- **Telephone:** +47 33 03 24 07 (24 h)
- **Telefax:** +47 33 04 29 87
- **E-mail address:** km.support.hpr@kongsberg.com
- **Website:** <http://www.km.kongsberg.com>

Note _____

The battery is provided as a solid and sealed unit. The battery cannot be opened to reveal individual cells.

For additional information about the cells inside the sealed battery pack, see the safety data sheet provided by the cell manufacturer.
<http://www.a123systems.com>

SECTION 2: Hazards identification

The battery is not provided with any hazards identification. It is not classified as dangerous or hazardous with normal use.

The battery should not be opened or burned. The battery contains dangerous ingredients. Exposure to the ingredients 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 would be corrosive and can cause irritation and burns.

Other hazards

- **Over charge** — If the cells that form the battery block are overcharged, the results may be a thermal runaway.
- **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 has a pressure relief valve at the bottom of the unit. The relief valve prevents overpressure. Noxious gases and ingredients will then leak out of the transponder until the chemical reactions have stopped. Products generated by the chemical reactions during an emergency may however clog this pressure release valve.

SECTION 3: Composition

The battery is a solid, manufactured article.

The lithium metal cells have the following chemical formula:

Li-Ion (LiFePO₄)

- **Negative electrode:** Lithium
- **Positive electrode:** Carbon
- **Battery name:** Battery cNODE MiniS
- **Part number:** 396782
- **Lithium weight:** 5.3 g
- **Certification:** UN 38.3
- **Class 9 exception:** The battery is excepted from Class 9.

Note _____

For additional information about the cells inside the sealed battery pack, see the safety data sheet provided by the cell manufacturer.

SECTION 4: First aid measures

The battery will release toxic fumes if burned or exposed to fire.

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

- **Inhalation:** The chemicals are lung irritant. Remove yourself from exposure, rest, and keep warm.
- **Skin contact:** The chemicals are skin irritant. Wash off skin thoroughly with water. Remove contaminated clothing and wash it before reuse.
- **Eye contact:** The chemicals are eye irritant. Irrigate thoroughly with water for at least 15 minutes.
- **Ingestion:** Exposure to the chemicals may cause tissue damage to throat and gastro/respiratory tract if swallowed. Wash out

mouth thoroughly with water and give plenty of water to drink. Seek medical advice.

SECTION 5: Firefighting measures

The battery in which the battery pack is used is designed to withstand damage to the internal battery pack. Nonflammable material is used. In case of fire, move battery from fire area if you can do it without risk. Extreme mechanical abuse to the battery may result in ruptured seal, and exposure.

The individual cells in the battery pack contain a flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (> 150 °C/302 °F), when damaged or abused. A burning battery can ignite other batteries in close proximity.

Suitable extinguishing media are dry chemical, CO₂, water spray or regular foam. Cool down the battery/transponder with copious amounts of cold water.

The interaction with water or water vapour and exposed lithium hexafluorophosphate (Li PF₆) 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. Use self-contained breathing apparatus.

Note _____

In case of an external fire, always remove transponder 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 ruptured seal, and exposure.

As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (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.

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

SECTION 7: Handling and storage

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

- 1 Do not open, disassemble, crush or burn the battery.
- 2 Do not expose the battery to temperatures outside the range of -30 °C to 70 °C.
- 3 Store in a dry location.

To minimize any adverse effects on the battery performance it is recommended that it is kept at room temperature (25 °C +/- 5 °C). Elevated temperatures can result in shortened life.

For long term storage the transponder should be fully charged and recharged every 6 months. If the transponders are left to deplete completely, it might be impossible to charge them again.

SECTION 8: Exposure control and personal protection

Airborne exposures to hazardous substances are not expected when the battery is used for its intended purpose. No protection (respirator, skin and/or eye) is then required. If the battery is damaged, and you are exposed to the chemicals inside it, proper personal protection is required.

In the event of fire or physical damage to the battery, follow the mandatory rules for personal protection.

- **Fire or explosion:** Use self-contained breathing apparatus.
- **Exposure to noxious gas:** Chemical resistant gloves and safety glasses.

SECTION 9: Physical and chemical properties

The battery is solid with a firm and hard appearance. No chemicals are exposed during normal use and transportation.

The battery pack is provided as a solid and sealed unit. The battery pack can not be opened to reveal the individual cells.

For additional information about the cells inside the sealed battery pack, see the safety data sheet provided by the cell manufacturer.

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 burned or exposed to fire. Breaching of the individual cell enclosure may lead to generation of hazardous

fumes which again may include extremely hazardous HF (hydrofluoric acid).

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 is not biodegradable.

Provided that the battery pack is disposed of according to local regulations and/or law, it will not have any environmental impact.

SECTION 13: Disposal considerations

Dispose of in accordance with local, state and federal laws and regulations for batteries.

A lithium thionyl chloride battery does not contain any heavy metals, and is therefore not regarded as special waste (contains only biodegradable parts).

A used transponder lithium battery often contains a significant amount of residual energy. It is the danger of explosion that presents a problem when disposing a battery. Used batteries must therefore be handled with the same care as new ones.

Note _____

For safe disposal, contact the nearest local company that has been approved to collect and dispose of lithium batteries.

SECTION 14: Transport information

Transportation of the cNODE MiniS must be performed in accordance to rules and regulations stated for transportation of dangerous goods in the applicable countries. Required battery state for transportation is 30% or less remaining capacity to comply with regulations.

- **Shipment of transponder**

Each cNODE MiniS is transported as a closed and sealed unit, and shall not be opened by unauthorized personnel.

As a battery with less than 100 Wh capacity, the transportation is made according to **ICAO/IATA packing instructions 967 Section II; Cells or batteries installed in equipment.**

The cNODE MiniS must be shipped in accordance with the prevailing national regulations; **UN No. 3481, Miscellaneous (Lithium Ion batteries included in equipment).**

- **Shipment of separate battery**

Separate batteries conform to **ICAO/IATA packing instructions 965 Section II; Cells or battery in a package, without electronic equipment.**

If the battery is shipped separately, the prevailing national regulations that apply are: **UN No. 3480, Miscellaneous (Lithium Ion battery).**

For all shipments – cNODE MiniS 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

Note _____

Damaged sensors that are returned to the manufacturer for repair shall be transported without batteries. Damaged or spent batteries that have been recalled by the manufacturer for safety reasons shall not be transported by air.

SECTION 15: Regulatory information

Not applicable.

SECTION 16: Other information

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

- A123 Systems: <http://www.a123systems.com/>