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Safety Data Sheet[1]

Product range: rail | power FNC

Content

[1]According to REACH Regulation (EC) No 1907/2006, Article 31, *Requirements for safety data sheets*, batteries are ARTICLES and are not covered by legal requirements to generate and supply a material safety data sheet. This Battery Information Sheet is provided solely as information document for the purpose of assisting our customers.

SECTION 1: Identification

1.1 Product
Industrial Nickel - Cadmium cells, modules or battery systems
(Rechargeable alkaline cells, vented or with partial gas recombination)

Commercial product name
FNC X(R), FNC H(R), FNC M(R), FNC L(R), FNC- A X(R), FNC- A H(R), FNC- C, FNC- R; FNC-T, FNC-VR, trak.FNC and other cells in plastic containers

Correct packaging designation
BATTERIES, WET, FILLED WITH ALKALI

IEC designation
KX, KH, KM, KL conforming to DIN IEC 60623
KGX, KGH conforming to DIN IEC 62259

1.2 Supplier

HOPPECKE Batterie Systeme GmbH
Bontkirchener Str. 1
59929 Brilon-Hoppecke
Germany
+49 2963 - 61 0
+49 2963 - 61 1452

1.3. Emergency contact

http://www.Hoppecke.com
+49 2963 - 61 0

SECTION 2: Hazards identification

The information below is intended for repeated and prolonged contact with the battery contents in an occupational setting. The below information is useful in case of accident or incident, but it is very unlikely to apply to normal product use. However, this product information sheet contains valuable information critical to the safe handling and proper use of this product. This product information sheet should be retained and available for employees and other users of this product.

There are no hazards or risks when the battery is used correctly and in accordance with the operating instructions and is installed and brought into operation as directed in the instructions.

Always be aware of the risk of fire, explosion, or burns. If the ventilation requirements of the operating instructions were not observed, detonating gas may accumulate in the battery cabinet or battery room as a result of overcharging of the battery. An explosion may occur if this gas is ignited by a spark, open flame or hot surface.

Do not short circuit the (+) and (-) terminals.
Do not disassemble or modify the battery.
Do not solder on a battery directly without any safety precautions. Keep fire or open flame away from the battery.

Battery systems with voltages > 60volts should always be kept in restricted access area. Only authorized people aware of high voltage hazards and trained to work on such systems are allowed to enter the battery area.

In normal use, the only chemical risk is due to the caustic effect of the electrolyte. Suitable precautions must therefore be taken when filling and emptying the battery cells. The specific materials of the electrodes are dangerous only if released due to destruction of the battery (physical damage, fire).

SECTION 3: Composition and information on ingredients

Component	Formula	CAS Number	EINECS Number	Content (wt.%)
Nickel hydroxide	$Ni(OH)_2$	12054-48-7	235-008-5	10 - 19
Cadmium hydroxide Cadmium	$Cd(OH)_2$ Cd	21041-95-2 7440-43-9	244-168-5 231-152-8	15 - 21
Cobalt hydroxide	$Co(OH)_2$	21041-93-0	244-166-4	0 - 3
Potassium hydroxide solution	KOH	1310-58-3	215-181-3	26 - 40
Lithium hydroxide	LiOH	1310-65-2	215-183-4	0 - 1
Nickel	Ni	7440-02-0	231-111-4	10 - 18
Iron	Fe	7439-89-6	231-096-4	17 - 25
Copper	Cu	7440-50-8	231-159-6	0 - 6
Plastics	N/A	N/A	N/A	3 - 8

Note: The accurate composition depends on the type of cell and of the state of charge of the cell

SECTION 4: First aid measures

First aid measures are not anticipated under normal use and conditions.
In the case of contact with electrolyte first aid measures are mandatory.

Eye contact with electrolyte
Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice or attention.

Skin contact with electrolyte
Wash off immediately with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Call a poison control center or doctor if you feel unwell. If skin irritation or rash occurs, get medical advice or attention.

Inhalation
Go out into the fresh air. Seek immediate medical attention/advice.

Ingestion
Do not induce vomiting. Call a doctor or poison control center immediately.

SECTION 5: Firefighting measures

5.1 Extinguishing agents
Use extinguishing agents which are appropriate to local circumstances and the surrounding environment.

5.2 Special risks during fire- fighting
The cells may become overheated due to an external heat source or an internal short-circuit, and may generate potassium hydroxide mist and/or hydrogen gas. In the case of fire, vapors containing cadmium, nickel and iron may occur.

5.3. Special protective equipment
As in any fire, wear self-contained breathing equipment and protective clothing.

SECTION 6: Accidental release measures

Personal Precautions
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Environmental Precautions
Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
See Section 12, Ecological Information.
See Section 13: Disposal consideration

SECTION 7: Handling and storage

Advice on Safe Handling

- Handle in accordance with good industrial hygiene and safety practice. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8. Contaminated work clothing should not be allowed out of the workplace.
- Wash face, hands, and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray.
- Handle batteries carefully to avoid damaging the case.
- Do not allow metallic articles to contact the battery terminals during handling.
- Avoid contact with the internal components of the battery cell.

Storage Conditions

- Keep container tightly closed and store in a cool, dry and well-ventilated place. Do not expose the cells to direct sun radiation.
- Protect from moisture. Prevent condensation on cells or battery terminals.
- Store away from heat, sparks, flame.
- Store away from incompatible materials.
- Elevated temperatures may result in reduced battery life. Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat generated can burn skin and even rupture the battery cell case. Metal covered tables or belts used for the assembly of batteries into devices can be the source of short circuits; apply insulating material to assembly work surfaces.
- Batteries packaged in bulk containers should not be shaken.

Soldering/Welding

- If soldering or welding to the case is required consult our Technical Department for proper precautions to prevent seal damage or external short circuit.

Charging:

- These batteries are designed for recharging. A loss of voltage and capacity of the battery due to self- discharge during prolonged storage is unavoidable. Charge battery before use. Observe the specified charge rate since higher rates can cause a rise in internal gas generation which may result in excessive heat generation or cell rupture and/or damage. Every battery comes with a detailed manual. Please read the instructions prior to doing any work on the battery.

SECTION 8: Exposure controls/personal protection

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Not needed under normal conditions. Wear tight-fitting safety glasses or face shield when handling damaged or cracked batteries.

Skin and Body Protection
Not needed under normal conditions. Wear rubber or plastic gloves when handling damaged or cracked batteries.

Respiratory Protection
Not required under normal conditions. If the battery is overcharged and concentrations of gassing dissipated aerosols are known to exceed the exposure limit in the working environment, use approved respiratory protection.

General hygiene considerations
Handle batteries carefully to avoid damaging the case. Make sure that the battery terminals do not come into contact with metal parts during handling. Avoid contact with the internal components of the battery.
For detailed handling instructions see battery manual.

SECTION 9: Physical and chemical properties

The Nickel – Cadmium cell or battery described in this Battery Information Sheet is a manufactured article and does not expose the user to hazardous substances when used in accordance with supplier specifications.

Physical State	Solid Article
Appearance	Battery; physical form and color as supplied

See manual for further instructions on battery use.

SECTION 10: Stability and reactivity

Reactivity
Not reactive under normal conditions.

Chemical Stability
The cells and battery systems are stable under the recommended storage conditions.

Possibility of Hazardous Reactions
There are no hazardous reactions under normal processing.

Hazardous Polymerization
Hazardous polymerization does not occur.

Materials to Avoid
Do not fill the cells with any acidic electrolyte, for e.g. sulfuric acid from lead-acid-batteries.

Conditions to Avoid
Exposure to temperatures above 70 °C can cause evaporation of the liquid content of the potassium hydroxide electrolyte.
Potential exposure to cadmium fumes during fire. See Section 7, Handling and storage.

SECTION 11: Toxicological information

If the cells or the battery system is mechanically or thermally abused, toxic and hazardous internal components may be exposed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Cadmium 7440-43-9	2330 mg/kg (Rat)	-	0,0008 – 0,066 mg/l/4h (Rat)
Nickel 7440-02-0	> 9000 mg/kg (Rat)	-	-
Nickel hydroxide 12054-48-7	1520 mg/kg (Rat)	> 2000 mg/kg (Rat)	1,2 mg/l/4h (Rat)
Potassium hydroxide 1310-58-3	365 mg/kg (Rat)	-	-

SECTION 12: Ecological information

There is no ecological harm when batteries are used correctly and recycled after end of useful life. See Section 13, Disposal consideration.

Released electrolyte: The sharp rise of pH – value may cause harmful impact on fish, plankton and other aquatic organisms.

SECTION 13: Disposal considerations

13.1 Disposal
Ni-Cd cells may not be disposed of with domestic refuse.
Used batteries which are not sent for recycling are to be disposed of as special waste, observing all relevant regulations.

13.1 Recycling
Used Ni-Cd batteries are recyclable economic goods and must be delivered for recycling. Hoppecke has a “closed loop” recycling system for Ni-Cd batteries. Your local HOPPECKE representative will be pleased to assist you in dealing with battery disposal.

Ni-Cd – batteries must be collected separately from other waste and recycled.

In Europe the management of recycling must be performed according to the directive 2006/66/EC as well as its transposition into each European Union’s Member State.

SECTION 14: Transport information

14.1 United Nations (UN)
UN 2795

UN N°	NAME	RAIL, ROAD (ADR, RID)				SEA (IMDG)					AIR (IATA)			
	Proper shipping name	CL	Code	Packing group	Labelling	CL	Risk	EmS	Packing group	Labeling	CL	Risk	Packing group	Labelling
2795	BATTERIES, WET, FILLED WITH ALKALI Electric storage	8	C 11	---	None	8	***	F-A S-B	---	8	8			8

14.2 International agreement
Air: IATA
Sea: IMDG
Land: ADR (road) or RID (rail)

Note:
Road transport in Europe of new or used cells and batteries with classification UN 2795, Class 8 is not restricted according to ADR special provision 598, providing that requirements of this special provision are met.

SECTION 15: Regulatory Information

Product marking (EU)

Cd

SECTION 16: Other Information

The information contained in this battery information sheet has been prepared according to the best of our knowledge and belief. It is based on sources of information believed as reliable at the time of preparation and is to this extent accurate and reliable at the time of writing.
However, no guarantee is given for the accuracy, reliability or completeness of the information obtained.
The present information relates to the material specified in this Battery Information Sheet. It is however not applicable to the use of this material in combination with other materials or processes. It is the responsibility of the user to ensure that the information is suitable and complete for his special application.
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