Material Safety Data Sheet

1. Product & Company Identification

Product:	NiMH Rechargeable Battery 4/5 A ZLF
Manufacturer:	Conrad Electronic SE
Nominal voltage:	1,2 V
Nominal capacity:	1800 mAh
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date of issue:	04.11.2015

2. Hazardous Ingredients

IMPORTANT NOTICE: The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

	CAS No.	**PEL**	**TLV**
NiOH		None Established	None Established
Hydrogen Powder		None Established	None Established
KOH		None Established	None Established

According to the European directive 2001/58/EC & 98/101/EC

Element:	Limit	Directive
Mercury	0.0005%	<0.0001%
Cadmium	0.025%	<0.007%
Lead	0.4%	<0.004%

3. Composition / Information on Ingredients

COMPONENTS	**%WEIGHT**
Nickel, Nickelhydroxide	About 32%
Hydrogen absorbing alloy (Ni, La, Ce, Pr, Nd. Mn, Al, Co)	About 38%
Cobalt	About 3%
Iron	About 10%
Potassium hydroxide	About 4%
Nylon	About 3%
PP fiber Separator	About 8%
Other	About 2%

4. First-aid measures

Inhalation:

In case of excessive inhalation due to leaking batteries remove to fresh air. Obtain medical advice.

Skin contact:

If exposed to a leaking battery, remove contaminated clothing. Wash exposed areas with plenty of water and soap. If irritation occurs, consult a physician.

Eye contact:

If a battery is leaking and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.

Ingestion:

Not anticipated due to size of batteries. Choking may occur with the smaller size batteries. If exposed to a leaking battery, rinse mouth and surrounding areas with running water for at least 15 minutes. Give plenty of water to drink, Do not induce vomiting. Obtain medical advice.

5. Fire-fighting measures

Suitable extinguishing media:

Carbon dioxide (CO2), foam, dry chemical power.

Extinguishing media not to be used:

Never use a direct water jet.

Exposure hazards from combustion products:

In case of fire, Carbon dioxide, Carbon monoxide and toxic organic substances will be generated. Do not inhale fumes and smoke.

Personal protective equipments:

Wear full protective clothing. Use self-contained apparatus.

6. Accidental release measures

Personal precautions:

Notify safety personal of large. Caustic potassium hydroxide may be released from leaking or ruptured batteries, Avoid eye or skin contact and inhalation of vapours. Increase the ventilation.

Wear protective clothing. Keep unprotected person away.

Environmental precautions:

Avoid discharge and penetration into sewerage systems, waterways, pits and cellars.

Methods for cleaning up:

Collect spilled material with an insert standard absorbent like sand or silica. Care for well-ventilated conditions. Recycle or dispose of the materials in an appropriate way.

7. Handing and storage

General handing:

Obey the common known rules and precautions for handing with chemicals. Avoid mechanical and electrical abuse. Do not short battery or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries according to equipment instructions. Do not mix battery systems, such as alkaline and zinc-carbon. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag. Do not remove battery labels.

Storage:

Store product in well-filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Store at -20~35 °C.

8. Exposure controls and personal protection

Exposition/Technical measures:

Atmospheric vapour concentrations must be minimized by adequate ventilation.

Protection of hands, eye and skin:

None required under normal use conditions. When handling leaking batteries, use neoprene, rubber or nitrile gloves and wear safety glasses to protect hands, eyes and skin.

General safety and hygiene measures:

Use only as directed.

9. Physical and chemical properties

COMPONENTS	DENSITY (g/cm3)	MELTING POINT	SOLUBILITY (H_2O)	ODOR	APPEARANCE
Nickel	8.0	About 1200 °C	None	None	Sliver-Gray Metal
Nickel hydroxide	4.3	N/A	None	None	Green Powder
Hydrogen absorbing alloy	8.2	About 1200 °C	None	None	Gray black Powder
Cobalt	8.0	About 1200 °C	None	None	Gray black Powder
Iron	7.8	About 1200 °C	None	None	Sliver-white Metal
Potassium hydroxide liquid	About 1.3	N/A	100%	None	Clear Colorless Liquid
PP fiber Separator	0.92	165 °C	None	None	White fabric
Nylon	1.15	260 °C	None	None	White solid

10. Stability and Reactivity

Thermal decomposition:

Batteries may burst and release hazardous decomposition products when exposed to fire.

Substances to avoid:

Strong oxidation agents.

Hazardous reactions:

Contents incompatible with strong oxdising agents.

Hazardous decomposition products:

Thermal degradation may produce hazardous fumes of zinc manganese; hydrogen gas; caustic of potassium hydroxide and other toxic by-products.

11. Toxicological information

Tocicity information is available on the battery ingredients noted in section 2, but in general, not applicable to intact batteries.

Chronic health effects: Not applicable to intact batteries.

12. Ecological information

Not available

13. Disposable considerations

Product:

Dispose in accordance with appropriate regulations. If in doubt, contact your local government office concerned for information. Do not incinerate, since batteries may explode at excessive temperatures.

14. Transportation

Our sealed Ni-MH batteries are considered to be “dry cell” batteries and are not subject to dangerous goods regulation for the purpose of transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Administration (ICAO), the international Air Transport Association (IATA) or the international Maritime Dangerous Goods regulations (IMDG).

The only IATA requirement for shipping Ni-MH batteries is Special Provision A123 which states: ”Batteries, dry cells are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals).

IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

15. Regulatory Information

Symbol: N/A

EC labeling: None

Risk phrases: None

Safety phrases: None

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16. Other information

It is the user's responsibility to assume liability on less, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.