SAFETY DATA SHEET
SECONDARY NICKEL-METAL HYDRIDE SEALED CELLS

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1. IDENTIFICATION

1.1 Product

Sealed rechargeable Cells
Trade name and model: All types in steel container.
IEC designation: HR… According IEC 285
Electrochemical system: Nickel/Metal hydride, alkaline electrolyte

Electrodes:
Positive: Nickel hydroxide
Negative: metal hydride
Electrolyte: Potassium hydroxide water solution.
Nominal voltage: 1.2Volts

1.2 Supplier

Name:	SAFT
Address:	12, Rue SADI CARNOT -93170- BAGNOLET
Tel/Fax:	+ 1 49 93 19 18 / + 1 49 93 19 50
Emergency contact:	SAFT local dealer.

2. COMPOSITION (Weight percentage of basic materials)

Medium single cell with steel container

Metals		%	Plastics		%	Other		%
Iron	Fe	23-27	Polypropylene	PP	2.5 - 3.5	Potassium	K	1.8 - 2.5
Nickel	Ni	17-23	Rubber	EPDM	< 0.05	Water	H2O	4 - 7
Metal hydride	MH	25-35	Polyethylene	PE	0.2 - 0.4	OH-		9 - 11
Cobalt	Co	0.4 -1.0	PVC		0.5 - 0.7			

3. HAZARDS

A sealed Nickel-Metal Hydride cell is not hazardous on principle.

3.1 Physical

No risk if cells are used for its intended purpose and according to valid directions for use.

3.2 Chemical

In normal use, no chemical risk.
On some bad using conditions (high over charge, inverse charge, external short circuit…) and in case of a bad functioning, some electrolyte can be removed from the cell by the security vent.
In these cases the risk is the caustic nature of electrolyte.

The toxic properties of the electrode materials are hazardous only if the materials are released by damaging the cell or if exposed to fire.

Classification of dangerous substances contained into the cells.

SUBSTANCES			CLASSIFICATION			
Name	EEC Number CAS Number	Symbol	Letter	Identification of danger	Special risk (1)	Safety advice (2)
Nickel Hydroxide	028-008-x* 12054-48-7	Ni(OH)2	Xn	Harmful	R 20/22-43-40	S 22/36
Cobalt Hydroxide	- 21041-93-0	Co(OH)2	Xn	Harmful	R22-42/43	S22-24-37
Potassium hydroxide	019-002-00-8 1310-58-3	KOH	C	Corrosive	R 35	S 26-37/39 -45

(1) Nature of special risk

R 20/21/22 :	Harmful by inhalation, skin contact or if swallowed.
R 20/22:	Harmful by inhalation or if swallowed.
R 35:	Causes serious burns.
R 40:	Possible risk of irreversible effects.
R 43:	May cause sensitising by skin contact.
R42/43:	May cause sensitising by inhalation and skin contact.

(2) Safety advice

S 22:	Do not breathe dust.
S 24:	Avoid contact with skin

S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36: Wear suitable protection clothing.
S 37: Wear suitable gloves.
S 37/39: Wear suitable gloves and eyes/face protection.
S 45: In case of accident or if you feel unwell, seek medical advice immediately.

4. FIRST AID MEASURES

In case of electrolyte leakage precautions must be taken to avoid personal to get in direct contact with it. If it accidentally happens following must be done:

4.1 Inhalation
Fresh air. Rinse mouth and nose with water. Medical treatment.

4.2 Skin contact
Rinse immediately with plenty of water. Medical treatment.

4.3 Eyes contact
Rinse immediately with plenty of water during at least 15-30 minutes. Immediate hospital treatment. Eye specialist.

4.4 Ingestion
If the injured is fully conscious: plenty of drink, preferably milk. Do not induce vomiting. Immediate Hospital treatment.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Suitable: Class D-Dry chemical, sand.
Not to be used : Water.

5.2 Special exposure hazards
Cells can be overheated by an external source or by internal shorting and develop potassium hydroxide mist and /or hydrogen gas. In fire situations fumes containing, Nickel, cobalt and iron may evolved.

5.3 Special protective equipment
Use self-contained breathing apparatus and full fire-fighting protective clothing.

6. HANLING AND STORAGE

No hazards during handling, no electrolyte can pour out of the sealed Ni-MH cells.
Storage following SAFT specifications: +5 to +25°C in a 65 +- 5% relative humidity.

7. EXPOSURE CONTROLS/PERSONAL PROTECTION

Under normal condition of use and handling no special protection is required for sealed Ni-MH cells.

8. PHYSICAL PROPERTIES

8.1 Appearance
Physical shape and colour as supplied.

8.2 Temperature range

Continuous: +5 to +25 °C.
Occasional: -40 to +50°C.

8.3 Specific energy

65 to 75 Wh/Kg

Note: Wh = Nominal voltage x rated Ah as defined in IEC standard.
Kg: Average battery weight in Kg.

8.4 Specific instant power

About : 1500 W/Kg

Note: W = 0.5 x nominal voltage x Ip
With Ip = current in Amperes delivered by a fully charged battery for half the nominal Voltage at one second.

Kg = Average battery weight in Kg.

8.5 Mechanical resistance
As defined in relevant IEC standard.

9. STABILITY AND REACTIVITY

9.1 Conditions
Temperature over 85°C. Internal shortage. Melting of gasket and rubber of vent.

9.2 Hazardous decomposition products
Nickel compounds, Cobalt compounds, Caustic liquid.

10. TOXICOLOGICAL INFORMATION

Nickel hydroxide	LD50/oral/rat: 1600 mg/Kg
Potassium hydroxide	LD50/oral/rat: 365mg/Kg
Cobalt hydroxide	LD50. Not available

11. ECOLOGICAL INFORMATION

Ni-MH cells contain no cadmium, no mercury, no lead and no toxic metals.

12. DISPOSAL CONSIDERATIONS

12.1 Incineration.
Never incinerate NI-MH batteries.

12.2 Landfill
Never dispose Ni-MH batteries as landfill.

12.3 Recycling
Ni-MH batteries can be recycled.

12.4 Additional information
Dispose in accordance with all applicable federal, state and local regulations.
Nickel Metal Hydride batteries -which in some countries may not be subject to collection & recycling and/or disposal requirements- do however contain recyclable materials and Saft recommends proper recycling of these batteries whenever possible.
You may refer to the following web page for further information and guidance :

http://www.ocde.org/ehs/nicd/nicdloc.htm (1)

You can also contact Saft.

(1) This page, although Ni-Cd oriented, does provide links to different National Battery Associations and National Collection & Recycling Associations that can provide you with the latest update on collection & recycling in their respective Countries.

14 TRANSPORT INFORMATION

Sealed Ni-MH batteries don't require specific transport obligations.