MATERIAL SAFETY DATA SHEET

HOPPECKE FIBER NICKEL CADMIUM (FNC) PLATE VENTED BATTERY

(without Electrolyte)

Date Prepared: January, 2009

Hoppecke Batteries, Inc.	**For Chemical Emergency:**
1960 Old Cuthbert Rd., Suite 130	Spill, Leak, Fire, Exposure or Accident
Cherry Hill, NJ 08034	Call CHEMTREC – Day or Night
Phone: 856-616-0032 / Fax: 856-616-0132	(800) 424-9300

THESE HAZARDS APPLY IN THE EVENT OF BATTERY BREAKAGE ONLY:

HMIS Ratings 3 Health 1 Flammability 0 Reactivity

Note: Under normal use and handling, the customer has no contact with the internal components of the battery or the chemical hazards. Under normal use and handling, these batteries do not emit regulated or hazardous substances.

HAZARDOUS INGREDIENTS	CAS#	OSHA Pel	ACGIH/TLV	% BY WEIGHT
*Nickel Hydroxide, Solid	12054-48-7	1 mg(Ni)/m3	.05 mg/m3	5-18%
*Nickel	7440-02-0	1 mg/m3	.05 mg/m3	25%
*Cadmium Oxide, Solid	1306-19-0	.005 mg/m3	.002 mg/m3	10-17%

*section 313 (40CFR 372) listed toxic chemicals are preceded by an *

NON-HAZARDOUS INGREDIENTS	EXPOSURE LIMITS	% BY WEIGHT
Inert Materials including:		
Polypropylene/Polyethersulfone Container	None Established	41- 60%

PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point – Not Applicable
Vapor Pressure - Not Applicable
Vapor Density – Not Applicable
Specific Gravity – Not Applicable
Melting Point - See Below
Evaporation Rate – Not Applicable

FIRE AND EXPLOSION HAZARD DATA

Flash Point

Case Material:	**Polypropylene**	**Polyethersulfone**
Melting Point:	279ºF	374ºF
Auto Ignition:		1022ºF (550C)

	Melting Point	**Boiling Point**
Cadmium	321 C	n/a
Cadmium Oxide	900 C	n/a
Nickel	1455C	n/a

Extinquishing Media
CO^2, Dry Chemical, Foam Water Spray

Special Fire Fighting Procedures
Use of self-contained breathing apparatus, protective clothing and equipment to prevent potential body contact with electrolyte solution or mixture of water and solution.

Unusual Fire and Explosion Hazards
Oxygen and hydrogen produced in an over charge may cause a fire or explosion, if a spark is present. Electrolyte solution is corrosive to all human tissues. It will react violently with many organic chemicals, especially nitro-carbons and chlorocarbons. Electrolyte solution reacts with zinc, aluminum, tin and other active materials releasing flammable hydrogen gas. Cadmium fumes may be released when batteries are subjected to high temperatures.

REACTIVITY DATA -

Stable under normal conditions.

CAUTION: NEVER ACTIVATE OR TOP OFF WITH ACID

Incompatibilities: Aluminum, zinc, tin and other active metals, acid, chlorinated and aromatic hydrocarbons, nitrocarbons, halocarbons. Trichlorethylene will react with electrolyte solution to form dichloractylene which is spontaneously combustible.

Hazardous Decomposition Products: Nickel oxide, cadmium, cadmium oxide and potassium hydroxide. Note that normal reactions – inside battery liberate flammable hydrogen gas. Do not seal battery from atmosphere. Hazardous Polmerization will not occur. If cells are torn apart and allowed to dry in a charged state, cadmium may oxidize and cause a fire.

HEALTH HAZARD INFORMATION – EFFECTS OF OVEREXPOSURE
These hazards apply in the event of battery breakage only:

Appearance and odor – Colorless, Oily Fluid. Acrid odor when hot.

Eye Effects: Contact with nickel hydroxide may cause minor irritation.

Skin Effects: Contact with nickel hydroxide and/or cadmium oxide may cause skin sensitization, resulting in chronic eczema or nickel itch.

Ingestion: Ingestion of nickel hydroxide, cadmium and/or cadmium oxide causes nausea and giddiness.

Inhalation: During activation procedures mist generated may cause varying degrees of irritation of the nasal mucous membranes and respiratory tract tissues. May vary from mild irritation of nasal mucous membranes to damage to lung tissues proper. Inhalation of cadmium oxide may cause dry throat, cough, headache, vomiting, chest pains and chills. Excessive overexposure may result in pulmonary emphysema, corpulmonate.

Carcinogenicity: NIGSA recommends that nickel and cadmium be treated as occupational carcinogens.

EMERGENCY FIRST AID –NICKEL HYDROXIDE

Eye Contact	Flush with plenty of water for at least 15 minutes. Get immediate medical attention.	**Skin Contact**	Wash with cold water and soap.
Ingestion	Dilute by giving water. If available, give several glasses of milk. You may induce vomiting. Get immediate medical attention. Do not give anything by mouth to an unconscious person.	**Inhalation**:	Remove to fresh air. Give oxygen or artificial respiration, if needed. Get immediate medical attention.

PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL MANAGEMENT PROCEDURES - ELECTROLYTE SOLUTION SPILLS
Since no electrolyte is in the battery, there is no potential for spill.

DISPOSAL INFORMATION
The storage battery is a hazardous waste under RCRA. Disposal through other than recycling is prohibited. Battery is EP Toxic. Battery and electrolyte solution are corrosive. Dispose of battery in discharged condition. Dispose of in accordance with all federal, state and local regulations. Contact your sales representative for recycling information.

HANDLING AND STORING: Store cells in cool dry area. Perform activation procedures in a well ventilated area. Battery operating areas must be well ventilated to remove normal gases generated. Never short-circuit the cells. If short-circuited, injuries or burns may result.

PRECAUTIONS AND COMMENTS
These cells and the batteries constructed from them may be highly active and capable of rapid generation of electrical energy. Care should be taken to handle cells properly to avoid shorting or misuse that will result in rapid uncontrolled generation of electrical, chemical or heat energy.

Do not transport activated batteries without vent cap in place.

When removing battery from service visually inspect for leakage prior to handling. If leakage has occurred, follow Spill Management Procedures.

Do not allow an exposed flame or spark to come near the cells.

CONTROL MEASURES

Respiration Protection: Use NIOSH approved mist respirator

Other Precautions: Perform activation procedures in a well ventilated area. Battery operating areas must be well ventilated to remove normal gases generated.

Eye Protection: Use splash goggles or face shields whenever handling a battery/electrolyte.

Hand Protection: If exposed to electrolyte solution or dried salts, use any water-insoluble, non-permeable glove, i.e. synthetic rubber, i.e. DO NOT use leather, cotton or wool.

Other Protective Equipment: Rubber Boots, rubber aprons or rainwear or equivalent if exposed to electrolyte solution: eye goggles and face shield.

Ecological Information: The chemical constituents of this battery can pose a threat if released to the environment. See page 3 of 4 for recycling information.