Bren-Tronics inc.
Military Batteries & Charging Systems

MATERIAL SAFETY DATA SHEET

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BB-390B/U (BT-70790)

Effective Date: 05/01/02

1. Product Identification

Product Name: Rechargeable Battery, Dry
Chemical System: NiMH (Nickel Metal Hydride)
NSN: 6140-01-490-4317
Nominal Weight: 3.875 Lbs. (1.76 Kg.)
Nominal Voltage: 24 Volts, Two (2) 12 Volt Sections

2. Composition/Information on Ingredients

Although the chemical composition of the various cell manufacturers is proprietary, the following is typical of the Nickel Metal Hydride chemistry.

Ingredients	--mg/m³-- OSHA PEL	--mg/m³-- ACGIH TLV	Other Limits	Approximate % Of Total Cell Weight
Nickel	1.0	1.0	N/A	31.5 – 35.5
Cobalt	0.1	0.1	N/A	3.0 – 3.8
Manganese	(c) 5.0	(c) 5.0	-	0.9 – 1.5
Potassium Hydroxide	(c) 2.0	(c) 2.0	-	2.4 – 2.8
Lanthanum	N/A	N/A	N/A	3.5 – 5.5
Praseodymium	N/A	N/A	N/A	0.8 – 1.4
Neodymium	N/A	N/A	N/A	3.0 – 4.6

Each cell is a sealed container.

3. Hazards Identification

Routes of Entry:

Inhalation?	Yes
Skin?	Yes
Ingestion?	Yes

Potential Health Effects:

Electrolyte is caustic. Contact with skin or eyes may cause irritation.

Signs/Symptoms of Exposure:

Skin and eye contact with KOH may cause chemical burns.

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

4. First Aid Measures

Emergency & First Aid Procedures:

Eyes or skin – flush with plenty of running water for at least 15 minutes and contact a physician.

Respiratory Protection (Specify Type):

Self-contained breathing apparatus when large number of cells are involved in a fire.

5. Fire Fighting Measures

Extinguishing Media:

Water, CO_2, Sand

Special Fire Fighting Procedures:

Use self-contained breathing apparatus, protective gloves and eye protection. Internal shorting and exposure to temperatures of above 212º can cause venting of the liquid electrolyte.

Unusual Fire and Explosion Hazards:

Nickel fumes may be released during burning. There is potential for exposure to iron, nickel, cobalt, rare earth metals (cerium, lanthanum neodymium, and praseodymium), manganese, and aluminum fumes during fire.

Flash Point (Method Used):

N/A

Flammable Limits:	**LEL**	**PEL**
	N/A	N/A

6. Accidental Release Measures

Ventilation:

Subsequent to a fire, provide as much ventilation as possible.

Protective Gloves:

Handle leakers with neoprene, rubber or latex-nitrile gloves.

Eye Protection:

When handling leakers, use safety glasses.

7. Handling and Storage

Precautions to be Taken in Handling and Storage:

Avoid mechanical or electrical abuse. Do not short circuit. Do not disassemble cells – contents may ignite when exposed to air.

Other Precautions:

Avoid incineration or unusual high current charge or reverse charge which may cause fire or rupture.

8. Exposure Controls/Personal Protection

Steps to be Taken in Case Material is Released or Spilled:
Flush electrolyte spills with water. Avoid eye and skin contact.

9. Physical and Chemical Properties

Hazardous Components	Boiling Point (°C)	Vapor Pressure (mm Hg)	Solubility in Water	Specific Gravity (H_20=1)	Melting Point (°C)	Appearance and Odor
Nickel	N/A	1 mm at 1810°C	0%	8.9	1453	Silvery-white metal
Cobalt	2870	N/A	0%	8.9	1495	Silver gray metal
Manganese	N/A	N/A	0%	5.0	535	Black powder
Potassium Hydroxide	1320	N/A	50%	2.7	360	Clear liquid

Vapor Density – N/A
Evaporation Rate – N/A

10. Stability and Reactivity

Stability:
Stable
Conditions to Avoid:
Do not disassemble or heat.
Hazardous Decomposition or By-products:
Do not incinerate or mutilate, may burst or release toxic material.
Hazardous Polymerization:
None

11. Toxicological Information

Carcinogenicity:	**NTP?**	**IARC Monograph?**	**OSHA Regulated?**
Nickel	Yes	Yes	No

12. Ecological Information

Environmentally safe – Contains zero (0)% Mercury or Cadmium.

13. Disposal Considerations

Waste Disposal Method:
Dispose in accordance with local, state, and federal regulations.

14. Transport Information

Transportation:
The proper shipping name is battery, dry and is 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).

UN-DOT Hazardous Class:
N/A

UN ID NO:
N/A

This information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Bren-Tronics Inc. makes no warranty, expressed or implied, regarding the accuracy of the data or the results to be obtained from the use thereof.

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Dennis Rosenberg
Quality Engineer