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ISO 9001:2008
REGISTERED

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Safety Data Sheet

Issue Date: 09-Oct-2013 **Revision Date**: 01-July-2020 **Version** 2

1. IDENTIFICATION

Product Identifier

Product Name Nickel Metal Hydride Battery

Other means of identification

SDS # GLI-005

Synonyms NiMH.

Recommended use of the chemical and restrictions on use

Recommended Use Battery.

Details of the supplier of the safety data sheet

Distributor
GlobTek, Inc.
186 Veterans Drive, Northvale, NJ 07647 USA +1-201-784-1000

Emergency Telephone Number

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Emergency Overview Safety Data Sheets (SDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees. Because all of our batteries are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard, hence an SDS is not required. However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

Appearance Geometric, solid object **Physical state** Solid

Classification

The chemicals listed in section 3 are contained in a sealed container. Risk of exposure only occurs if battery is mechanically, thermally, or electrically abused.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms NiMH.

Chemical Name	CAS No	Weight-%
Nickel	7440-02-0	30-40
Other Proprietary Chemicals	Proprietary	<13
Potassium hydroxide	1310-58-3	10-15
Cobalt	7440-48-4	4-8
Lithium Hydroxide	1310-65-2	0-4
Caustic Soda	1310-73-2	4-8
Manganese	7439-96-5	< 2

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

First Aid Measures

General Advice The following information applies if the battery is mechanically, thermally, or electrically abused.

Eye Contact Immediately flush eyes with water for 30 minutes while lifting the upper and lower lids. Get medical attention.

Skin Contact Flush affected area with lukewarm water for at least 30 minutes. If skin irritation persists, call a physician.

Inhalation If symptoms are experienced, remove source of contamination or move victim to fresh air. Get medical attention.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center. National battery ingestion hotline: 202-625-3333.

Most important symptoms and effects

Symptoms Chemicals may cause burns to skin, eyes, gastrointestinal tract and mucous membranes. Contact with skin may cause chronic eczema or nickel itch. Electrolyte is extremely corrosive to eye tissue and may cause permanent blindness. If swallowed it may cause choking, nausea, persistent vomiting, diarrhea, abdominal pain, dizziness, faintness, unconsciousness and possible liver and kidney injury.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water spray (fog). Foam. Dry powder.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Cells may rupture when exposed to excessive heat. This could result in the release of flammable or corrosive materials.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full

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protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required. Ventilate affected area.

Other Information The material contained within the batteries is only expelled under abusive conditions.

For Emergency Responders If the battery material is released, remove personnel from the area until fumes dissipate.

Environmental precautions

Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Prevent skin and eye contact and collect all released material in a plastic lined container. For waste disposal, see section 13 of the SDS.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Do not expose battery or cell to extreme temperatures or fire. Do not disassemble, crush or puncture battery. Avoid mechanical or electrical abuse. Do not short circuit.

Conditions for safe storage, including any incompatibilities

Storage Conditions Insulate positive and negative terminals to avoid short circuit. Storing unpacked cells together could result in cells shorting and heating to the point of rupturing. Prevent condensation on cells or battery terminals. Elevated temperatures may result in reduced battery life. Protect from direct sunlight.

Packaging Materials If packing materials are not available, place masking tape on positive and negative ends of the cells.

Incompatible Materials If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons. Water with internal contents of battery.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel 7440-02-0	TWA: 1.5 mg/m^3 inhalable fraction	TWA: 1 mg/m^3 (vacated) TWA: 1 mg/m^3	IDLH: 10 mg/m^3 IDLH: 10 mg/m^3 Ni TWA: 0.015 mg/m^3 TWA: 0.015 mg/m^3 except

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			Nickel carbonyl Ni
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m^3	(vacated) Ceiling: 2 mg/m^3	Ceiling: 2 mg/m^3
Cobalt 7440-48-4	TWA: 0.02 mg/m^3 TWA: 0.02 mg/m^3 Co	TWA: 0.1 mg/m^3 dust and fume (vacated) TWA: 0.05 mg/m^3 dust and fume	IDLH: 20 mg/m^3 dust and fume TWA: 0.05 mg/m^3 dust and fume
Caustic Soda 1310-73-2	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3 (vacated) Ceiling: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3
Manganese 7439-96-5	TWA: 0.02 mg/m^3 respirable fraction TWA: 0.1 mg/m^3 inhalable fraction TWA: 0.02 mg/m^3 Mn respirable fraction TWA: 0.1 mg/m^3 Mn inhalable fraction	(vacated) TWA: 1 mg/m^3 fume (vacated) STEL: 3 mg/m^3 fume (vacated) Ceiling: 5 mg/m^3 Ceiling: 5 mg/m^3 fume Ceiling: 5 mg/m^3 Mn	IDLH: 500 mg/m^3 IDLH: 500 mg/m^3 Mn TWA: 1 mg/m^3 fume TWA: 1 mg/m^3 Mn STEL: 3 mg/m^3 STEL: 3 mg/m^3 Mn

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Showers. Eyewash stations. Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Always wear safety glasses when working with batteries and cells. Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection Not necessary under conditions of normal use. In case of battery rupture or leakage, wear rubber apron and Viton rubber gloves, Protective clothing. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection Not necessary under conditions of normal use. In case of battery venting or rupture, use a self contained full face respiratory mask. Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Geometric, solid object	**Odor**	Not determined
Color	Not determined	**Odor Threshold**	Not applicable

Property	**Values**	**Remarks • Method**
pH	Not determined	
Melting Point/Freezing Point	NA	
Boiling Point/Boiling Range	NA	
Flash Point	None	
Evaporation Rate	NA	
Flammability (Solid, Gas)	Not determined	
Flammability Limits in Air		
Upper Flammability Limits	NA	
Lower Flammability Limit	NA	
Vapor Pressure	NA	
Vapor Density	NA	
Relative Density	NA	
Water Solubility	Not applicable	
Solubility in other solvents	Not determined	

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Partition Coefficient	Not determined
Auto-ignition Temperature	NA
Decomposition Temperature	Not determined
Kinematic Viscosity	Not determined
Dynamic Viscosity	Not determined
Explosive Properties	Not determined
Oxidizing Properties	Not applicable

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid
Heating, mechanical and electrical abuse. Electrical shorting. Moisture, recharge, disassembly.

Incompatible Materials
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons. Water with internal contents of battery.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information Inhalation, skin contact and eye contact are possible when the battery is opened. The following is based on exposure to internal contents

Eye Contact Corrosive to the eyes and may cause severe damage including blindness.

Skin Contact Irritating to skin. Contents of an open battery may be absorbed through the skin causing localized inflammation.

Inhalation Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs.

Ingestion Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of the mouth, esophagus, and gastrointestinal tract.

Component Information

Chemical Name	ATEmix (oral)	ATEmix (dermal)	Inhalation LC50
Nickel 7440-02-0	> 9000 mg/kg (Rat)	-	-
Potassium hydroxide 1310-58-3	= 284 mg/kg (Rat)	-	-
Cobalt 7440-48-4	= 6171 mg/kg (Rat)	-	> 10 mg/L (Rat) 1 h

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Lithium Hydroxide 1310-65-2	= 210 mg/kg (Rat)	-	= 960 mg/m^3 (Rat) 4 h
Caustic Soda 1310-73-2	-	= 1350 mg/kg (Rabbit)	-
Manganese 7439-96-5	= 9 g/kg (Rat)	-	-

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen. However, the product as a whole has not been tested.

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel 7440-02-0		Group 2B	Known Reasonably Anticipated	X
Cobalt 7440-48-4	A3	Group 2B	Reasonably Anticipated	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
NTP (National Toxicology Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Nickel 7440-02-0	0.18: 72 h Pseudokirchneriella subcapitata mg/L EC50 0.174 - 0.311: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	1.3: 96 h Cyprinus carpio mg/L LC50 semi-static 100: 96 h Brachydanio rerio mg/L LC50 10.4: 96 h Cyprinus carpio mg/L LC50 static	1: 48 h Daphnia magna mg/L EC50 Static 100: 48 h Daphnia magna mg/L EC50
Potassium hydroxide 1310-58-3		80: 96 h Gambusia affinis mg/L LC50 static	
Cobalt 7440-48-4		100: 96 h Brachydanio rerio mg/L LC50 static	
Caustic Soda 1310-73-2		45.4: 96 h Oncorhynchus mykiss mg/L LC50 static	

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
Potassium hydroxide 1310-58-3	0.83

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Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Cells must be recycled.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

US EPA Waste Number

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Nickel 7440-02-0		Included in waste streams: F006, F039		

California Hazardous Waste Status
This product contains one or more substances that are listed with the State of California as a hazardous waste

Chemical Name	California Hazardous Waste Status
Nickel 7440-02-0	Toxic powder Ignitable powder
Potassium hydroxide 1310-58-3	Toxic Corrosive
Cobalt 7440-48-4	Toxic powder Ignitable powder Toxic
Caustic Soda 1310-73-2	Toxic Corrosive
Manganese 7439-96-5	Ignitable powder

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT Please contact manufacturer for most current information

IATA Please contact manufacturer for most current information

IMDG Please contact manufacturer for most current information

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Nickel	X	X	X		X	Present	X	X
Potassium hydroxide	X	X	X	Present	X	Present	X	X

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Cobalt	X	X	X		X	Present	X	X
Lithium Hydroxide	X	X	X	Present	X	Present	X	X
Caustic Soda	X	X	X	Present	X	Present	X	X
Manganese	X	X	X		X	Present	X	X

Legend:

TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*

DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*

EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*

ENCS *- Japan Existing and New Chemical Substances*

IECSC *- China Inventory of Existing Chemical Substances*

KECL *- Korean Existing and Evaluated Chemical Substances*

PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

AICS *- Australian Inventory of Chemical Substances*

US Federal Regulations

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Nickel 7440-02-0	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
Potassium hydroxide 1310-58-3	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Caustic Soda 1310-73-2	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Nickel - 7440-02-0	7440-02-0	30-40	0.1
Cobalt - 7440-48-4	7440-48-4	4-8	0.1
Manganese - 7439-96-5	7439-96-5	< 2	1.0

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nickel		X	X	
Potassium hydroxide	1000 lb			X
Caustic Soda	1000 lb			X

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Nickel - 7440-02-0	Carcinogen
Cobalt - 7440-48-4	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania

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Nickel 7440-02-0	X	X	X
Potassium hydroxide 1310-58-3	X	X	X
Cobalt 7440-48-4	X	X	X
Caustic Soda 1310-73-2	X	X	X
Manganese 7439-96-5	X	X	X

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

Issue Date: 09-Oct-2013
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Revision Note: New product

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any othe materials or in any process, unless specified in the text.

End of Safety Data Sheet

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