



Safety Data Sheet

Issue Date: 09-Oct-2013

Revision Date: 01-July-2020

Version 2

1. IDENTIFICATION

Product Identifier

Product Name Nickel Cadmium Battery

Other means of identification

SDS # GLI-004

Synonyms NiCd.

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.

Other hazards

Very toxic to aquatic life with long lasting effects



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3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms NiCd.

| Chemical Name | CAS No | Weight-% |
|---------------------|-------------|----------|
| Cadmium hydroxide | 21041-95-2 | 11-26 |
| Cadmium | 7440-43-9 | 11-26 |
| Nickel | 7440-02-0 | 8-17 |
| Nickel hydroxide | 12054-48-7 | 5-12 |
| Nylon | Proprietary | <2 |
| Potassium hydroxide | 1310-58-3 | <3 |

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



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. |
|----------------------------------|---|

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 |
|---------------------------------|--|--|--|
| Cadmium hydroxide 21041-95-2 | TWA: 0.01 mg/m ³ Cd TWA: 0.002 mg/m ³ Cd respirable fraction | - | IDLH: 9 mg/m ³ Cd dust and fume |
| Cadmium 7440-43-9 | TWA: 0.01 mg/m ³ TWA: 0.002 mg/m ³ respirable fraction TWA: 0.01 mg/m ³ Cd TWA: 0.002 mg/m ³ Cd respirable fraction | TWA: 0.1 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is | IDLH: 9 mg/m ³ dust IDLH: 9 mg/m ³ Cd dust and fume |



| | | | |
|----------------------------------|--|---|---|
| | | stayed or otherwise not in effect TWA: 5 µg/m ³ (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect | |
| 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 Nickel carbonyl Ni |
| Nickel hydroxide 12054-48-7 | TWA: 0.2 mg/m ³ Ni inhalable fraction | TWA: 1 mg/m ³ Ni (vacated) TWA: 1 mg/m ³ Ni | IDLH: 10 mg/m ³ Ni TWA: 0.015 mg/m ³ except Nickel carbonyl Ni |
| Potassium hydroxide 1310-58-3 | Ceiling: 2 mg/m ³ | (vacated) Ceiling: 2 mg/m ³ | Ceiling: 2 mg/m ³ |

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 | Odor | Not determined |
| Appearance | Geometric, solid object | Odor Threshold | Not applicable |
| Color | Not determined | | |
| 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 |
| 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 |
|----------------------|----------------------|-----------------|---------------------------------------|
| Cadmium 7440-43-9 | = 1140 mg/kg (Rat) | - | = 25 mg/m ³ (Rat) 30 min |
| Nickel 7440-02-0 | > 9000 mg/kg (Rat) | - | - |
| Iron | = 984 mg/kg (Rat) | - | - |



| | | | |
|----------------------------------|----------------------|------------------|--------------------------------------|
| 7439-89-6 | | | |
| Nickel hydroxide 12054-48-7 | = 1515 mg/kg (Rat) | > 2 g/kg (Rat) | = 1200 mg/m ³ (Rat) 4 h |
| Potassium hydroxide 1310-58-3 | = 284 mg/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 |
|--------------------------------|-------|----------|---------------------------------|------|
| Cadmium 7440-43-9 | A2 | Group 1 | Known | X |
| Nickel 7440-02-0 | | Group 2B | Known Reasonably Anticipated | X |
| Nickel hydroxide 12054-48-7 | A1 | Group 1 | Known | X |

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

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 |
|----------------------|--|---|--|
| Cadmium 7440-43-9 | | 4.26: 96 h Cyprinus carpio mg/L LC50 semi-static 0.006: 96 h Oncorhynchus mykiss mg/L LC50 static 0.016: 96 h Oryzias latipes mg/L LC50 0.003: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.0004 - 0.003: 96 h Pimephales promelas mg/L LC50 0.002: 96 h Cyprinus carpio mg/L LC50 0.24: 96 h Cyprinus carpio mg/L LC50 static 21.1: 96 h Lepomis macrochirus mg/L LC50 flow-through | 0.0244: 48 h Daphnia magna mg/L EC50 Static |
| 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 |
| Iron 7439-89-6 | | 13.6: 96 h Morone saxatilis mg/L LC50 static | |
| Potassium hydroxide | | 80: 96 h Gambusia affinis mg/L | |



| | | | LINCS | | | | | |
|---------------------|---|---|-------|---------|---|---------|---|---|
| Cadmium hydroxide | X | X | X | Present | X | Present | | X |
| Cadmium | X | X | X | | X | Present | X | X |
| Nickel | X | X | X | | X | Present | X | X |
| Iron | X | X | X | | X | Present | X | X |
| Nickel hydroxide | X | X | X | Present | X | Present | X | X |
| Potassium hydroxide | X | X | X | Present | 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) |
|----------------------------------|--------------------------|----------------|---|
| Cadmium 7440-43-9 | 10 lb | | RQ 10 lb final RQ RQ 4.54 kg final RQ |
| Nickel 7440-02-0 | 100 lb | | RQ 100 lb final RQ RQ 45.4 kg final RQ |
| Nickel hydroxide 12054-48-7 | 10 lb | | RQ 10 lb final RQ RQ 4.54 kg final RQ |
| Potassium hydroxide 1310-58-3 | 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 % |
|--------------------------------|------------|----------|----------------------------------|
| Cadmium hydroxide - 21041-95-2 | 21041-95-2 | 11-26 | 0.1 |
| Cadmium - 7440-43-9 | 7440-43-9 | 11-26 | 0.1 |
| Nickel - 7440-02-0 | 7440-02-0 | 8-17 | 0.1 |
| Nickel hydroxide - 12054-48-7 | 12054-48-7 | 5-12 | 0.1 |

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 |
|---------------------|--------------------------------|------------------------|---------------------------|-------------------------------|
| Cadmium hydroxide | | X | | |
| Cadmium | | X | X | |
| Nickel | | X | X | |
| Nickel hydroxide | | X | | X |
| Potassium hydroxide | 1000 lb | | | X |

US State Regulations

California Proposition 65



This product contains the following Proposition 65 chemicals.

| Chemical Name | California Proposition 65 |
|--------------------------------|--|
| Cadmium hydroxide - 21041-95-2 | Carcinogen |
| Cadmium - 7440-43-9 | Carcinogen Developmental Male Reproductive |
| Nickel - 7440-02-0 | Carcinogen |
| Nickel hydroxide - 12054-48-7 | Carcinogen |

U.S. State Right-to-Know Regulations

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|----------------------------------|------------|---------------|--------------|
| Cadmium hydroxide 21041-95-2 | X | | X |
| Cadmium 7440-43-9 | X | X | X |
| Nickel 7440-02-0 | X | X | X |
| Nickel hydroxide 12054-48-7 | X | X | X |
| Potassium hydroxide 1310-58-3 | X | X | X |

16. OTHER INFORMATION

NFPA

Health Hazards

Flammability

Instability

Special Hazards

HMIS

Health Hazards

Flammability

Physical hazards

Personal Protection

Not determined

Not determined

Not determined

Not determined

Issue Date:

09-Oct-2013

Revision Date:

01-July-2020

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 other materials or in any process, unless specified in the text.

End of Safety Data Sheet