# SAFETY DATA SHEET

Form #: SDS 853025
Revised: AD
Supersedes: AC
ECO #: 1002580

## I. PRODUCT IDENTIFICATION

**Chemical Trade Name (as used on label):**
Industrial Nickel Cadmium Storage Battery w/ Pocket Plate

**Chemical Family/Classification:**
N/A

**Manufacturer's Name/Address:**

EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Canada Corporate Office
3-61 Parr Boulevard
Bolton, Ontario
L7E 4E3

**Telephone:**
For information and emergencies, contact EnerSys' Environmental, Health & Safety Dept. at 610-208-1996

**24-Hour Emergency Response Contact:**
CHEMTREC DOMESTIC: 800-424-9300
CHEMTREC INT'L: 703-527-3877

## II. GHS HAZARDS IDENTIFICATION

| HEALTH | | ENVIRONMENTAL | PHYSICAL |
|---|---|---|---|
| Acute Toxicity - Oral | Category 4 | Aquatic Chronic 1 | |
| Acute Toxicity - Inhalation | Category 2 | Aquatic Acute 1 | |
| Skin Corrosion/Irritation | Category 1 | | |
| Eye Damage | Category 1 | | |
| Respiratory Sensitizer | Category 1 | | |
| Skin sensitizer | Category 1 | | |
| Mutagenic | Category 2 | | |
| Carcinogenic | Category 1A | | |
| Reproductive | Category 1A | | |
| Specific Target Organ Toxicity (repeated exposure) | Category 2 | | |

**GHS LABEL:**

HEALTH | ENVIRONMENTAL | PHYSICAL

**Hazard Statements**
**DANGER!**
Fatal if inhaled.
Causes severe skin burns and eye damage.
Suspected of causing genetic defects.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if inhaled.
Causes damage to lungs and kidneys through prolonged or repeated exposure.
Harmful if swallowed.

**Precautionary Statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear respiratory protection.
Contaminated work clothing must not be allowed out of the workplace.
Do not breathe dust/fumes/gas/mist/vapors/spray.

**Precautionary Statements cont.**
If exposed or concerned: Get medical advice/attention.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal material.
Response for exposure to internal electrolyte:
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
If inhaled: remove person to fresh air and keep comfortable for breathing.
Immediately call poison center/doctor.
Specific treatment is urgent: See section IV of this SDS.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## III. COMPOSITION / INFORMATION ON INGREDIENTS

| Components | CAS Number | Approximate % by Wt. |
|---|---|---|
| Nickel (as Nickel and Nickel hydroxide) | 7440-02-0<br>12054-48-7 | 9-10 |
| Cadmium (as Cadmium and Cadmium hydroxide) | 7440-43-9<br>21041-95-2 | 8-10 |
| Iron (Fe) | 7439-89-6 | 20-25 |
| Stainless Steel (Fe, Ni, Cr) | N/A | 7-15 |
| Cobalt (as Cobalt hydroxide) | 7440-48-4 | 0.2 |
| Potassium hydroxide solution (KOH) | 1310-58-3 | 30-40 |
| Lithium hydroxide solution (LiOH) | 1310-66-3 | < 1 |

## IV. FIRST-AID MEASURES

**Inhalation:**
Not applicable to batteries in transit but if on charge in confined, poorly ventilated area and fumes irritating, remove person to fresh air.

**Ingestion:**
Get medical help. Give patient copious amounts of water. Do not induce vomiting.

**Skin:**
Remove contaminated clothing and flush skin with water for 15 minutes. Do not attempted to neutralize with alkaline.

**Eyes:**

Hold eyelids open and flush with clean water for 15 minutes. Get medical help promptly.

## V. FIRE-FIGHTING MEASURES

**Flash Point:** N/A **Flammable Limits:** LEL = N/A UEL = N/A

**Extinguishing Media:** Dry chemical, $CO_2$, water spray, or alcohol-resistant foam.

**Special Fire Fighting Procedures:**

Use full body protective clothing and full face piece. Self-contained breather apparatus in a positive pressure mode. Molted and overheated Cd and Ni produce fume, vapor or dust. Under these conditions, Ni or Cd is suspected carcinogen. KOH is highly caustic. Contact with eye and skin must be avoided. No heating or smoking during handling or inspection. Do not cause sparks.

## VI. ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:**

Clean up personnel should wear safety goggles, rubber gloves, rubber boots and rubber apron. Use weak acids, ex: boric acid, acetic acid.

## VII. HANDLING AND STORAGE

**Handling:**

Rubber boots and rubber aprons, chemical goggles or full-face shield should be worn while handling.

**Storage:**

Cells/Batteries to be stored in standard battery room conditions.

**Charging:**

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections.

Charging space should be ventilated. Prohibit smoking and avoid creation of flames and sparks nearby.

Wear face and eye protection when near batteries being charged.

## VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Limits ($mg/m^3$) Note: N.E.= Not Established**

| INGREDIENTS (Chemical/Common Names) | OSHA PEL | ACGIH | US NIOSH | Quebec PEV | Ontario OEL | EU OEL |
|---|---|---|---|---|---|---|
| Nickel (As Nickel and Nickel hydroxide) | 1 | 1.5 | 0.015 | 1 | 1 | N.E. |
| Cadmium (As Cadmium and Cadmium hydroxide) | 0.005 | 0.01 | N.E. | 0.025 | 0.01 | 0.005 |
| Iron (Fe) | 10 | 5 | 5 | N.E. | 1 | 3 |
| Stainless Steel (Fe, Ni, Cr) | N.E. | N.E | N.E. | N.E. | N.E. | N.E. |
| Cobalt (as Cobalt hydroxide) | 0.1 | 0.02 | 0.05 | 0.02 | 0.02 | 0.02 |
| Potassium hydroxide solution (KOH) | N.E. | N.E. | 2 | 2 | 2 | 1 |
| Lithium Hydroxide Solution (LiOH) | N.E. | N.E. | N.E. | N.E. | 1 | 1.52 |

**Engineering Controls (Ventilation):**

Store and handle in well-ventilated area.

Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries.

Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries.

Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

**Respiratory Protection (NIOSH/MSHA approved):**

None required under normal conditions.

**Skin Protection:**

If battery case is damaged, use rubber or gloves with elbow-length gauntlet, alkaline-resistant apron, clothing and boots.

**Eye Protection:**

If battery case is damaged, use chemical goggles or face shield.

**Other Protection:**

None identified.

## IX. PHYSICAL AND CHEMICAL PROPERTIES

**Properties Listed Below are for Electrolyte:**

| | | | |
|---|---|---|---|
| **Boiling Point:** | N/A | **Specific Gravity (H2O = 1):** | 1.2 kg/L |
| **Melting Point:** | N/A | **Vapor Pressure (mm Hg):** | |
| **Solubility in Water:** | 100% | **Vapor Density (AIR = 1):** | |
| **Evaporation Rate: (Butyl Acetate = 1)** | | **% Volatile by Weight:** | |
| **pH:** | N/A | **Flash Point:** | N/A |
| **LEL (Lower Explosive Limit)** | N/A | **UEL (Upper Explosive Limit)** | N/A |
| **Appearance and Odor:** | Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor | | |

## X. STABILITY AND REACTIVITY

**Stability:** Stable X Unstable ___

**This product is stable under normal conditions at ambient temperature.**

**Conditions To Avoid:** Avoid shorting batteries such as contacting across terminals with any metal object. Avoid continuous temperatures over 190 degrees F.

**Incompatibility: (Materials to avoid)**

Do not fill cells with Lead Acid Battery electrolyte (Sulfuric Acid).

**Hazardous Decomposition Products:**

Nickel compounds, Cadmium compounds, and caustic liquid.

**Hazardous Polymerization:**

Will not occur.

## XI. TOXICOLOGICAL INFORMATION

**Routes of Entry:**

Hydroxides: Harmful by all routes of entry.

Metal Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume.

**Inhalation:**

Gases, vapors, or mists are not generated under normal operating conditions (not a transportation condition).

**Ingestion:**

Severe irritation of internal tissues. Contact physician immediately.

**Skin Contact:**
Corrosive to skin; severe irritation and inflammation. Flush with water. Obtain medical attention.

**Eye Contact:**
Severe irritation and possible eye damage. Flush with water for 15 minutes.

**Effects of Overexposure - Acute:**
Potassium hydroxide: Severe skin irritation, damage to cornea, upper respiratory irritation.
Nickel Compounds: Exposure to nickel may result in contact allergy.

**Effects of Overexposure - Chronic:**
Nickel (metallic): Chronic inhalation may produce effects such as rhinitis, sinusitis, nasal septal perforations and asthma.
Cadmium Compounds: Chronic exposure to cadmium may result in kidney and liver damage and reduced pulmonary function.

**Carcinogenicity:**
Nickel and cadmium compounds: Classified as presumed or suspected carcinogens to humans. The International Agency for Research on Cancer (IARC) has classified nickel, cadmium and cadmium compounds as Group 1 carcinogens, a substance that is carcinogenic to humans. IARC has classified nickel compounds as Group 2B, possibly carcinogenic to humans.

**Proposition 65:**
Warning: Battery contains nickel and nickel compounds, cadmium and cadmium compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

**Medical Conditions Generally Aggravated by Exposure:**
Contact of potassium hydroxide and nickel with skin may aggravate diseases such as eczema and contact dermatitis.

**Acute Toxicity:**
Inhalation LC50:
Elemental Cadmium: rat 25 mg/$m^3$ - 30 minutes

**Oral LD50:**
KOH: rat 273 - 1230 mg/kg
Elemental Cadmium: rat 225 mg/kg; mouse 890 mg/kg

**Additional Health Data:**
All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

## XII. ECOLOGICAL INFORMATION

**Environmental Fate:**
Metals are very persistent in soil and sediments. Mobility of metals between ecological compartments is slow.
Low bioaccumulation risk.

**Environmental Toxicity:** Aquatic Toxicity:
Nickel hydroxide: 96 hr LC50 freshwater fish (Oncorhynchus mykiss/rainbow trout): 15 mg/L

**Additional Information:**
· No known effects on stratospheric ozone depletion.
· Volatile organic compounds: 0% (by Volume)
· Water Endangering Class (WGK): Ni(OH)2 = 3

## XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

**Spent batteries:** Send to appropriate recycling facility. This should be managed in accordance with approved local, state and federal requirements.
Consult state environmental agency and/or federal EPA.

**Electrolyte:**
Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA. Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

## XIV. TRANSPORT INFORMATION

**U.S. DOT:**
The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (49 CFR). These regulations classify these types of batteries as a hazardous material. Refer to 49 CFR, 173.159 for more details pertaining to the transportation of wet and moist batteries.

The shipping information is as follows:

| | |
|---|---|
| Proper Shipping Name: Batteries, wet, filled with alkali | Packing Group: N/A |
| Hazardous Class: 8 | Label/Placard Required: Corrosive |
| UN Identification: UN2795 | |

Contact your EnerSys representative for additional information regarding the classification of batteries.

49 CFR 173.159(e) specifies that when transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of this subchapter, if all of the following are met:
(1) No other hazardous materials may be transported in the same vehicle;
(2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit;
(3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries; and
(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.
If any of the above-referenced requirements are not met, the batteries must be shipped as fully-regulated Class 8 Corrosive hazardous materials.

**IATA Dangerous Goods Regulations DGR:**
The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 870.

The shipping information is as follows:

| | |
|---|---|
| Proper Shipping Name: Batteries, wet, filled with alkali | Packing Group: N/A |
| Hazardous Class: 8 | Label/Placard Required: Corrosive |
| UN Identification: UN2795 | |

Contact your EnerSys representative for additional information regarding the classification of batteries.

**IMDG:**

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as hazardous material. The batteries must be packed according to IMDG code pages 8120 and 8121. IMDG Code Packing Instruction P801.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with alkali
Hazardous Class: 8
UN Identification: UN2795

Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

## XV. REGULATORY INFORMATION

**UNITED STATES:**

**EPA SARA Title III:**

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier 2 reporting is required for batteries if potassium hydroxide, nickel and/or cadmium is present in quantities of 10,000 lbs. or more.

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements.
If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

| Toxic Chemical | CAS Number | Approximate % by Wt. |
|---|---|---|
| Nickel | 744-02-0 | 9-10 |
| Cadmium | 744-43-9 | 8-10 |
| Cobalt | 7440-48-4 | 0.2 |

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

**TSCA:**

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

**RCRA:**

Spent nickel-cadmium batteries are regulated as universal waste by the EPA when recycled, however state and international regulations may vary.

**CAA:**

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

**STATE REGULATIONS (US):**

**Proposition 65:**

Warning: Battery contains nickel and nickel compounds, cadmium and cadmium compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

**INTERNATIONAL REGULATIONS:**

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).
Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

## XVI. OTHER INFORMATION

Revised: **2/20/2024**

DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.