



# SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS Standards, European Union CLP EC 1272/2008, REACH, Australian WorkSafe, the Japanese Industrial Standard JIS Z 7250: 2000, the Korean ISHA (Notice 2009-68), SPRING Singapore, Mexican Workplace Regulations (NOM-018-STPS-2000), New Zealand HNSO and the Global Harmonization Standard,

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### PRODUCT IDENTIFIER

<u>TRADE NAME (AS LABELED):</u>	<b>NICKEL METAL HYDRIDE BATTERY PACK</b>
<u>BRADY MODEL NUMBER:</u>	BMP-41
<u>CHEMICAL NAME/CLASS:</u>	Nickel Metal Hydride Chemistry
<u>SYNONYMS:</u>	BMP-41 BATT
<u>PRODUCT USE:</u>	Battery Pack
<u>UN NUMBER:</u>	For Shipments by Vessel Only: UN 3496; Not Classified as Dangerous Goods when Shipped by Ground or Air
<u>HAZCHEM CODE (Australia):</u>	2Y

### SUPPLIER OF THE SAFETY DATA SHEET

<u>U.S. SUPPLIER/MANUFACTURER'S NAME:</u>	Brady Worldwide
<u>ADDRESS:</u>	6555 West Good Hope Road Milwaukee, WI 53223 USA (414) 358-6600 [8 am to 5 pm CT] Infotrac: 1-800-535-5053 (U.S. and Canada) [24 hours]
<u>BUSINESS PHONE:</u>	
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<u>EUROPEAN SUPPLIER/ DISTRIBUTOR'S NAME:</u>	WH Brady NV
<u>ADDRESS:</u>	Lindestraat 20 Industriepark C3 B - 9240 ZELE BELGIUM 0032/(0)52.45.79.05 [9 am to 5 pm]
<u>BUSINESS PHONE:</u>	
<u>EMAIL:</u>	<a href="mailto:REACH_Americas@bradycorp.com">REACH_Americas@bradycorp.com</a>
<u>DATE OF PREPARATION:</u>	October 13, 2015
<u>DATE OF REVISION:</u>	November 21, 2017

This product has been classified in accordance with the hazard criteria of U.S. OSHA, Canadian WHMIS 2015 [HPR-GHS], European Union REACH and CLP, Australian [NOHSC:2011 (2015)], Singapore SPRING and Japanese Industrial Standard (JIS Z7253) required information is included. It is located in appropriate sections based on the Global Harmonization Standard format.

**NOTE:** This product is defined as an "Article" under all jurisdictions. Refer to Section 15 (Regulatory Information) for specific regulatory citations. As an article, this product presents negligible health and physical hazards under reasonably anticipated circumstances of use. Subsequently, a Safety Data Sheet is not required under Standards cited above. This document is prepared to provide persons using this product with additional safety information.

## 2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION, U.S. OSHA HAZARD COMMUNICATION STANDARD, CANADIAN WHMIS HPR-GHS 2015, EU CLP REGULATION (EC) 1272/2008 LABELING AND CLASSIFICATION, JAPANESE JIS Z 7253: 2012 LABELING AND CLASSIFICATION, KOREAN ISHA (Notice 2009-68) LABELING AND CLASSIFICATION, NEW ZEALAND HAZARDOUS SUBSTANCES and NEW ORGANISMS ACT (HNSO) CHEMICAL CLASSIFICATION (COP 8-1 09-06), OR AUSTRALIAN NOHSC STANDARDS: This product is an article and is not required to be classified under any jurisdiction.

The nickel metal hydride electrolyte solution ingredients are contained in a hermetically sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, hazardous materials are fully contained inside the battery. The battery should not be crushed, deformed, punctured, opened or exposed to heat because exposure to the ingredients contained within could be harmful under some circumstances. The following information is provided for the user's information only.

**EMERGENCY OVERVIEW: Product Description:** This product is a nickel metal hydride battery consisting of sealed outer case, formed electrodes and electrolyte solution. **Health Hazards:** This product is considered a manufactured article and presents negligible health, or reactivity hazards under typical use conditions. If exposure to the electrolyte solution occurs from puncture, heating or other destruction of the outer case, contact with the solution may be harmful by inhalation, skin or eye contact. Inhalation of fumes from burning electrolyte solution may cause burns to respiratory system. Skin or eye contact with the electrolyte solution may also produce burns, especially if contact is prolonged. Exposure by skin contact and inhalation of the battery solution may cause sensitization and allergic reaction. The Nickel Dihydroxide component of the electrolyte solution is a known carcinogen. **Flammability Hazards:** Batteries can explode during a fire. If involved in a fire, this product can burn and produce toxic gases (e.g. carbon, nickel, cobalt, and lanthanum oxides). During a fire involving this product care should be taken to avoid inhalation of fumes. **Reactivity Hazards:** The electrolyte solution can react with water to form hydrochloric acid. Contact with the anodes can produce hydrogen gas. **Environmental Hazards:** This product is not expected to cause harm if released to the environment; however, release of the electrolyte solution can cause acute and chronic toxicity to aquatic organisms. **Emergency Response Considerations:** Emergency responders must wear proper personal protective equipment (and have appropriate fire protection) suitable for the situation to which they are responding.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

Chemical Name	CAS #	EU EINECS #	Japanese ENC #	Australian AICS	Korean ECL #	New Zealand HNSO	% w/w	LABEL ELEMENTS GHS under U.S. OSHA, Canadian WHMIS HPR-GHS & EU Classification (1272/2008), Japanese, Taiwan, Chinese and Korean Regulations Korean ISHA Classification Hazard Statement Codes
The following materials are part of the electrodes:								
Cerium	7440-45-1	231-154-9	Mineral-exempt	Listed	KE-05379	HSR006252	Proprietary	<p>NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2 Hazard Statement Codes: H228</p> <p>ADDITIONAL SELF-CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Acute Oral Toxicity Cat. 4, Acute Skin Toxicity Cat. 4, Acute Inhalation Toxicity Cat. 4, Skin Irritation Cat. 2, Eye Irritation Cat. 2A, STOT (Inhalation-Respiratory Irritation) SE Cat. 3, Aquatic Chronic Cat. 3 Hazard Statement Codes: H302 + H312 + H332, H315, H319, H335, H413</p> <p>Classification under Korean ISHA: Classification: Flammable Solid Cat. 2, Acute Oral Toxicity Cat. 4, Acute Skin Toxicity Cat. 4, Acute Inhalation Toxicity Cat. 4, Skin Irritation Cat. 2, Eye Irritation Cat. 2, STOT (Inhalation-Respiratory Irritation) SE Cat. 3, Aquatic Chronic Cat. 3 Hazard Statement Codes: H228, H302 + H312 + H332, H315, H319, H335, H413</p>
Cobalt Powder	7440-48-4	231-158-0	Mineral-exempt	Listed	KE-06060	HSR002946	Proprietary	<p>HARMONISED EU CLP CLASSIFICATION Classification under All Jurisdictions: Classification: Skin Sensitization Cat. 1, Respiratory Sensitizer Cat. 1, STOT (Inhalation-Respiratory Irritation) SE Cat. 3, Aquatic Chronic Toxicity Cat. 4 Hazard Statement Codes: H317, H334, H335, H413</p> <p>ADDITIONAL NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions: Classification: Carcinogenic Cat. 1B, Reproductive Toxicity Cat. 2, Acute Inhalation Toxicity Cat. 3, STOT (Inhalation-Lungs) SE Cat. 3, Aquatic Acute Toxicity Cat. 2 Hazard Statement Codes: H350i, H361fd, H331, H373, H400</p>
Lanthanum	7439-91-0	231-099-0	Not Listed	Listed	Not Listed	May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right.	Proprietary	<p>NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2 Hazard Statement Codes: H228</p> <p>ADDITIONAL SELF-CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Skin Irritation Cat. 2, Eye Irritation Cat. 2A Hazard Statement Codes: H315, H319</p> <p>Classification Under Korean ISHA: Classification: Flammable Solid Cat. 2, Skin Irritation Cat. 2, Eye Irritation Cat. 2 Hazard Statement Codes: H228, H315, H319</p>
Neodymium	7440-00-8	231-109-3	Mineral-exempt	Listed	KE-25784		Proprietary	<p>NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2, Self-Heating Substances, Skin Irritation Cat. 2, Eye Irritation Cat. 2A Hazard Statement Codes: H228, H251, H315, H319, H413</p> <p>Classification under Korean ISHA: Classification: Flammable Solid Cat. 2, Self-Heating Substances, Skin Irritation Cat. 2, Eye Irritation Cat. 2 Hazard Statement Codes: H228, H251, H315, H319</p>
Praseodymium	7440-10-0	231-120-3	Mineral-exempt	Not Listed	Not Listed		Proprietary	<p>NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2, Self-Heating Substances, Skin Irritation Cat. 2, Eye Irritation Cat. 2A, Aquatic Chronic Toxicity Cat. 4 Hazard Statement Codes: H228, H251, H315, H319, H413</p> <p>Classification under Korean ISHA: Classification: Flammable Solid Cat. 2, Self-Heating Substances, Skin Irritation Cat. 2, Eye Irritation Cat. 2, Aquatic Chronic Toxicity Cat. 4 Hazard Statement Codes: H228, H251, H315, H319, H413</p>
Nickel foam	7440-02-0	231-111-4	Mineral-exempt	Listed	KE-08896	HSR002948	Proprietary	<p>NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions: Classification: Carcinogenic Cat. 2, Skin Sensitization Cat. 1, STOT (Inhalation-Respiratory Irritation) SE Cat. 3, STOT RE Cat. 1, Aquatic Chronic Toxicity Cat. 3 Hazard Statement Codes: H350i, H317, H371, H412</p>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret. See Section 16 for full text of classification.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

Chemical Name	CAS #	EU EINECS #	Japanes e ENC #	Australia n AICS	Korean ECL #	New Zealand HNSO	% w/w	LABEL ELEMENTS GHS under U.S. OSHA, Canadian WHMIS HPR-GHS & EU Classification (1272/2008), Japanese, Taiwan, Chinese and Korean Regulations Korean ISHA Classification Hazard Statement Codes
The following materials are in the electrolyte mixture in the battery:								
Nickel Dihydroxide	12054-48-7	235-008-5	1-417	Listed	KE-25841	May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right.	Proprietary	HARMONISED EU CLP CLASSIFICATION <u>Classification under All Jurisdictions:</u> Classification: Germ Cell Mutagen Cat. 2, Carcinogenic Cat. 1B, Reproductive Toxicity Cat. 1B, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Respiratory Sensitization Cat. 1, STOT (Inhalation-Lungs) RE Cat. 1, Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1 Hazard Codes: H341, H350i, H360D, H317, H334, H371, H410 ADDITIONAL SELF-CLASSIFICATION <u>Classification under All Jurisdictions:</u> Classification: Acute Oral Toxicity Cat. 4, Acute Inhalation Toxicity Cat. 4, Skin Irritation Cat. 2, STOT (Inhalation-Respiratory Irritation) SE Cat. 3, Metal Corrosion Cat. 1 Hazard Codes: H302 + H332, H315, H335, H290
Potassium Hydroxide	1310-58-3	215-181-3	1-369	Listed	KE-29139	HSR001546	Proprietary	HARMONISED EU CLP CLASSIFICATION <u>Classification under All Jurisdictions:</u> Classification: Skin Corrosion Cat. 1A, Acute Oral Toxicity Cat. 4, Metal Corrosion Cat. 1 Hazard Codes: H314, H302, H290
Sodium Hydroxide	1310-73-2	215-185-5	1-410	Listed	KE-31487	HSR001587: 0.5-2.0%	Proprietary	HARMONISED EU CLP CLASSIFICATION <u>Classification under All Jurisdictions:</u> Classification: Skin Corrosion Cat. 1A, Metal Corrosion Cat. 1 Hazard Codes: H314, H290

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret. See Section 16 for full text of classification.

### 4. FIRST-AID MEASURES

**PROTECTION OF FIRST AID RESPONDERS:** Rescuers should be taken for medical attention, if necessary. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

**DESCRIPTION OF FIRST AID MEASURES:** Persons using this product should consult a physician or other medical professional if an accident involving this product results in injury. Specific first-aid measures are as follows:

**Eye or Skin Contact:** If skin or eye contact occurs to electrolyte solution, flush for 20 minutes. Contact physician or other medical health professional.

**Inhalation:** If any adverse effect occurs as a result of inhalation of fumes from thermal decomposition of the electrolyte solution during fire or other heating of battery, remove individual to fresh air. Seek medical attention if adverse effect occurs after removal to fresh air.

**Ingestion:** Not a potential route of exposure.

**IMPORTANT SYMPTOMS AND EFFECTS:** Acute and Chronic Effects: See Section 11.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** No medical conditions are known to be aggravated by this product.

**IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:** Treat symptoms and eliminate exposure.

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable. **AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS (in air by volume, %):** Not applicable.

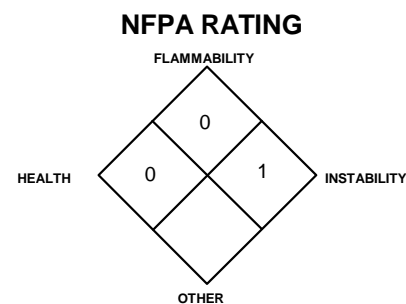
**FIRE EXTINGUISHING MEDIA:** Dry chemical powder, dry sand or dolomite or other metal fire extinction extinguishing material. Carbon dioxide should only be used on incipient fires.

**UNSUITABLE FIRE EXTINGUISHING MEDIA:** Water.

**SPECIAL FIRE AND EXPLOSION HAZARDS:** Batteries can explode in a fire. Contact with the electrolyte solution and water can produce corrosive materials. Contact with water may also produce hydrogen gas. Products of thermal decomposition can include produce toxic gases (e.g. carbon, lithium, nickel, copper, manganese, cobalt, aluminum, iron, and lanthanum oxides). Damaged or opened cells or batteries can result in rapid heating and the release of toxic vapors.

**Explosion Sensitivity to Mechanical Impact or Static Discharge:** Not applicable.

**SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS:** Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.



Hazard Scale: 0 = Minimal 1 = Slight  
2 = Moderate 3 = Serious 4 = Severe

### 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS:** Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. The atmosphere must have levels of components lower than those listed in Section 8, (Exposure Controls and Personal Protective Equipment) if applicable, and have at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA).

**PERSONAL PROTECTIVE EQUIPMENT:** For clean-up of leaking electrolyte solution, proper protective equipment should be used. In the event of a spill, clear the area and protect people.

**Small Spills:** Wear rubber gloves, splash goggles, and appropriate body protection.

**Large Spills:** Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield, and Tyvek suit. Minimum level of personal protective equipment for releases in which the level of oxygen is less than 19.5% or is unknown must be **Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and Self-Contained Breathing Apparatus.**

## 6. ACCIDENTAL RELEASE MEASURES (Continued)

**METHODS FOR CLEAN-UP AND CONTAINMENT:** No special accidental release measures are required for non-damaged batteries. Damaged batteries that are not hot or burning should be placed in a sealed container and disposed of according to all disposal regulations.

**Small Spills:** Pick-up or sweep-up spilled batteries. Wipe up any spilled electrolyte with polypads or other suitable absorbent materials. Wash contaminated area with soap and water, absorb with paper towels, and rinse with water. Neutralize area with appropriate material if appropriate.

**Large Spills:** Trained personnel following pre-planned procedures should handle non-incident releases. Absorb spilled liquid with dry sand or other suitable non-reactive absorbent materials. Prevent material from entering sewer or confined spaces, waterways, soil or public waters. Monitor area and confirm levels are below exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, before non-response personnel are allowed into the spill area.

**All Spills:** Place all spill residue in an appropriate container and seal. Decontaminate the area thoroughly. If necessary, discard all stained response equipment or rinse with soapy water before returning such equipment to service. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

**ENVIRONMENTAL PRECAUTIONS:** Prevent any spill residue from entering sewer or confined spaces.

## 7. HANDLING and STORAGE

**PRECAUTIONS FOR SAFE HANDLING:** Never store different types of batteries or batteries with different chemistry together. Store away from acids, sources of heat or flame, or other incompatible materials as listed in Section 10 (Stability and Reactivity). Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted. In the event of skin or eye exposure to the electrolyte, refer to Section 4, First Aid Measures. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.

**CONDITIONS FOR SAFE STORAGE:** Do not expose the battery pack or printer to water or rain, or allow them to get wet as damage to batteries may occur. Do not use oil or solvents to clean or lubricate the battery. The plastic casing will become brittle and crack, causing a risk of injury. Store the battery pack in a cool, dry place. Do not store battery where temperatures may exceed 60°C (140°F) such as in direct sunlight, a vehicle or metal building during summer. Dispose of Brady Nickel Metal Hydride Batteries according to federal, state and local regulations. Contact a recycling agency in your area for recycle locations.

### **NICKEL-METAL HYDRIDE BATTERY HANDLING PRECAUTIONS**

**Before using the battery pack, read these important instructions. Failure to follow these instructions may result in electric shock, fire, and/or serious personal injury.**

- 1. Do not disassemble, open, or modify the battery pack.** This may result in the risk of electric shock, fire or exposure to battery chemicals. If it is damaged, replace the battery.
- 2. Do not short circuit the battery pack.** A battery pack will short circuit if a metal object makes a connection between the positive and negative contacts on the battery. Do not transport or store the battery pack together with metal objects such as tools, hardware, etc. A short circuited battery may cause fire and personal injury.
- 3. Do not expose the battery pack to heat or fire, avoid storage in direct sunlight.** Batteries may explode, causing personal injury or damage. Toxic fumes and materials are created when batteries are burned.
- 4. Do not expose the battery pack to water or rain, or allow it to get wet.** Otherwise, the protective features in the battery pack can be damaged; the pack can exhibit extremely high current and or voltage, abnormal chemical reactions may occur in the pack, possibly leading to overheating, smoke emission, bursting and/or ignition.
- 5. Do not crush, drop, or damage batteries.** Do not use the battery pack that has received a sharp blow, been dropped, run over, or damaged in any way (e.g., pierced with a nail, hit with a hammer, stepped on).
- 6. Observe the plus (+) and minus (-) marks on the battery pack and equipment and ensure correct use.** If you cannot easily connect the battery pack to the battery pack charger or other equipment, confirm that the correct AC charger adapter specifically designed for charging is used for charging, or terminals are correctly oriented for operation. Using the improper charger adapter could result in reverse-charging and abnormal chemical reaction may occur, then possibly leading to leakage, overheating, smoke emission, bursting and/or ignition of the battery pack.
- 7. Recharge the battery pack outside the printer using the charger adapter specifically designed for that purpose** and observe the recharging conditions specified by the manufacturer. A recharging operation under non-conforming recharging conditions (beyond the limits of temperature and larger voltage/current than specified) can cause the battery pack to be overcharged, or charged with extremely high current, abnormal chemical reaction can occur in it, possibly leading to overheating, smoke emission, bursting and/or ignition.
- 8. Do not use the battery pack for a purpose other than those specified.** Misuse of battery pack may damage the battery pack, shorten battery pack life, result in risk of fire, electric shock or personal injury.

**SPECIFIC END USE(S):** Universal battery pack.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

### **EXPOSURE LIMITS/CONTROL PARAMETERS:**

**Ventilation and Engineering Controls:** No engineering controls are required for handling batteries that have not been damaged.

**Exposure Limits/Control Parameters:** The following limits are for the components of the electrolyte solution only.

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELS		NIOSH	OTHER
		TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	IDLH mg/m <sup>3</sup>	
Nickel Dioxide Exposure limits given are for Nickel Oxide	12054-48-7	Nickel soluble compounds: 0.1 as Ni (inhalable)	NE	Nickel Soluble compounds: 1 (as Ni); Vacated 1989 PEL: 0.1 (as Ni)	NE	0.015 (as Ni)	NE	10 (as Ni)	DFG MAKs: Inhalable fraction; SAH Carcinogen (Nickel Compounds); IARC-1, MAK-1, NIOSH-Ca, NTP-K

NE = Not Established. SAH = Danger of Sensitization of the Skin and Airways

See Section 16 for Definitions of Other Terms Used

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

### EXPOSURE LIMITS/CONTROL PARAMETERS (continued):

#### Exposure Limits/Control Parameters (continued):

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELS		NIOSH	OTHER
		TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	IDLH mg/m <sup>3</sup>	mg/m <sup>3</sup>
Potassium Hydroxide	1310-58-3	NE	2 (ceiling)	2 (vacated 1989 PEL)	NE	NE	2 (ceiling)	NE	NE
Sodium Hydroxide	1310-73-0	NE	2 (ceiling)	NE	NE	NE	2 (ceiling)	10	NE

NE = Not Established. SAH = Danger of Sensitization of the Skin and Airways

See Section 16 for Definitions of Other Terms Used

**Additional International Exposure Limits:** The following additional international limits are in place for components of the electrolyte solution only.

Exposure limits can change or be added and should be checked for currency.

#### NICKEL DIHYDROXIDE:

ARAB Republic of Egypt: TWA = 0.1 mg(Ni)/m<sup>3</sup>, JAN 1993  
Australia: TWA = 0.1 mg(Ni)/m<sup>3</sup>, JUL 2008  
Belgium: TWA = 1 mg(Ni)/m<sup>3</sup>, MAR 2002  
Finland: TWA = 0.1 mg(Ni)/m<sup>3</sup>, NOV 2011  
France: VME = 1 mg(Ni)/m<sup>3</sup>, C3 Carcinogen, FEB 2006  
Hungary: TWA = 0.1 mg(Ni)/m<sup>3</sup>, STEL 0.1 mg(Ni)/m<sup>3</sup>, SEP 2000  
Japan: OEL = 0.1 mg(Ni)/m<sup>3</sup>, 2B carc, MAY 2012  
Korea: TWA = 0.1 mg(Ni)/m<sup>3</sup>, 2006  
New Zealand: TWA = 0.1 mg(Ni)/m<sup>3</sup>, sen, JAN 2002  
The Philippines: TWA = 1 mg(Ni)/m<sup>3</sup>, JAN 1993  
Poland: MAC(TWA) = 0.25 mg(Ni)/m<sup>3</sup>, JAN 1999  
Russia: STEL = 0.05 mg(Ni)/m<sup>3</sup>, Carcinogen, JUN 2003  
Sweden: TWA = 0.1 mg(Ni)/m<sup>3</sup> (total dust), Carcinogen, Sen, JUN 2005  
Switzerland: MAK-W = 0.05 mg(Ni)/m<sup>3</sup>, carc 1, inhal, sen, JAN 2011  
Thailand: TWA = 1 mg(Ni)/m<sup>3</sup>, JAN 1993  
United Kingdom: TWA = 0.5 mg(Ni)/m<sup>3</sup>, skin, OCT 2007  
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

#### POTASSIUM HYDROXIDE:

Australia: CL = 2 mg/m<sup>3</sup>, JUL 2008  
Austria: MAK-TMW = 2 mg/m<sup>3</sup>, inhal, 2007  
Belgium: STEL = 2 mg/m<sup>3</sup>, MAR 2002  
Denmark: CL = 2 mg/m<sup>3</sup>, MAY 2011  
Finland: CL = 2 mg/m<sup>3</sup>, NOV 2011  
France: VLE = 2 mg/m<sup>3</sup>, FEB 2006  
Hungary: TWA = 2 mg/m<sup>3</sup>, STEL = 2 mg/m<sup>3</sup>, SEP 2000  
Iceland: STEL = 2 mg/m<sup>3</sup>, NOV 2011  
Japan: CL = 2 mg/m<sup>3</sup>, MAY 2012  
Korea: CL = 2 mg/m<sup>3</sup>, 2006  
The Netherlands: MAC-C = 2 mg/m<sup>3</sup>, 2003  
New Zealand, CL = 2 mg/m<sup>3</sup>, JAN 2002

#### POTASSIUM HYDROXIDE (continued):

Norway: TWA = 2 mg/m<sup>3</sup>, JAN 1999  
Peru: STEL = 2 mg/m<sup>3</sup>, JUL 2005  
Sweden: TWA = 1 mg/m<sup>3</sup>; STEL = 2 mg/m<sup>3</sup>, (inhal. dust), JUN 2005  
Switzerland: MAK-W = 2 mg/m<sup>3</sup>, inhal, JAN 2011  
United Kingdom: STEL = 2 mg/m<sup>3</sup>, OCT 2007  
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

#### SODIUM HYDROXIDE:

Australia: CL = 2 mg/m<sup>3</sup>, JUL 2008  
Austria: MAK-TMW = 2 mg/m<sup>3</sup>; KZW = 4 mg/m<sup>3</sup>, inhal, 2007  
Belgium: TWA = 2 mg/m<sup>3</sup>, MAR 2002  
Denmark: CL = 2 mg/m<sup>3</sup>, MAY 2011  
Finland: CL = 2 mg/m<sup>3</sup>, NOV 2011  
France: VME = 2 mg/m<sup>3</sup>, FEB 2006  
Hungary: TWA = 2 mg/m<sup>3</sup>, STEL = 2 mg/m<sup>3</sup>, SEP 2000  
Iceland: STEL = 2 mg/m<sup>3</sup>, NOV 2011  
Japan: OEL-C = 2 mg/m<sup>3</sup>, MAY 2009  
Korea: CL = 2 mg/m<sup>3</sup>, 2006  
Mexico: Peak = 2 mg/m<sup>3</sup>, 2004  
The Netherlands: MAC-TGG = 2 mg/m<sup>3</sup>, 2003  
New Zealand: CL = 2 mg/m<sup>3</sup>, JAN 2002  
Norway: TWA = 2 mg/m<sup>3</sup>, JAN 1999  
Peru: STEL = 2 mg/m<sup>3</sup>, JUL 2005  
The Philippines: TWA = 2 mg/m<sup>3</sup>, JAN 1993  
Poland: MAC(TWA) = 0.5 mg/m<sup>3</sup>, MAC(STEL) = 1 mg/m<sup>3</sup>, JAN 1999  
Sweden: TWA = 1 mg/m<sup>3</sup>, CL = 2 mg/m<sup>3</sup> (inhalable dust), JUN 2005  
Switzerland: MAK-W = 2 mg/m<sup>3</sup>, KZG-W = 2 mg/m<sup>3</sup>, DEC 2006  
Thailand: TWA = 2 mg/m<sup>3</sup>, JAN 1993  
Turkey: TWA = 2 mg/m<sup>3</sup>, JAN 1993  
United Kingdom: STEL = 2 mg/m<sup>3</sup>, OCT 2007  
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

**ACGIH Biological Exposure Indices:** None established

**SAFE WORK AND HYGIENE PRACTICES:** Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. In event of release of electrolyte fluid, avoid contact by all routes of exposure.

**PERSONAL PROTECTIVE EQUIPMENT:** The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132), equivalent standards of Canada (including CSA Standard Z94.4-02 and CSA Standard Z94.3-02, U.S. OSHA 29 CFR 1910.136 and the Canadian CSA Standard Z195-02, *Protective Footwear*), standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection), or standards of Australia (including AS/NZS 1715:1994 for respiratory PPE, AS/NZS 4501.2:2006 for protective clothing, AS/NZS 2161.1:2000 for glove selection, and AS/NZS 1336:1997 for eye protection), Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment, Australian Standard 2161-Industrial Safety Gloves and Mittens, or Japanese Standards JIS T 8147:2003, JIS T 8116:2005 as well as Korean and Singapore Standards. Please reference applicable regulations and standards for relevant details.

**Respiratory Protection:** No special respiratory protection is required for use of this product during normal use.

**Eye Protection:** No special eye protection is required for use of this product. If batteries are damaged or leaking use safety goggles when handling the batteries.

**Hand Protection:** No special hand protection is normally required for use of this product. If batteries are damaged or leaking use wear butyl rubber, polyvinyl alcohol gloves or other appropriate glove.

**Body/Skin Protection:** No special body or skin protection is normally required for use of this product. If a hazard of injury to the feet exists due to falling objects or rolling objects use foot protection, as described in U.S. OSHA 29 CFR 1910.136 and the Canadian CSA Standard Z195-02, *Protective Footwear*.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**FORM:** Manufactured article containing electrolyte solution.

**MOLECULAR FORMULA:** Mixture.

**ODOR:** Not applicable.

**SPECIFIC GRAVITY (water = 1):** Not available.

**SOLUBILITY IN WATER:** Insoluble.

**VAPOR PRESSURE:** Not applicable.

**HEAT OF COMBUSTION:** Not available.

**OXIDIZING PROPERTIES:** Not an oxidizer.

**COLOR:** Various parts have different colors.

**MOLECULAR WEIGHT:** Mixture.

**ODOR THRESHOLD:** Not applicable.

**MELTING/FREEZING POINT:** Not available.

**BOILING POINT:** Not applicable.

**pH:** Not applicable.

**THERMAL CONDUCTIVITY:** Not available.

## 9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

**EXPLOSIVE PROPERTIES:** Heating or water contact may cause overpressure of outside casing and possible explosive result.

**COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT):** Not applicable.

## 10. STABILITY and REACTIVITY

**CHEMICAL STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** Combustion: Carbon, nickel, cobalt, cerium, lanthanum and other metal oxides. Hydrolysis: Contact with the electrolyte solution and water can produce hydrochloric acid.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** The electrolyte solution is incompatible with potassium tert-butoxide, oxidizers, reducing agents, acids and alkalis.

**POSSIBILITY OF HAZARDOUS REACTION/POLYMERIZATION:** Intact batteries are not reactive. If the electrolyte solution inside the battery contacts water, a reaction generating heat may occur from contact with water. Polymerization will not occur.

**CONDITIONS TO AVOID:** Avoid damaging batteries in any way that could release electrolyte solution. Avoid exposure to heat, flame, or other ignition source. Avoid contact with water. Avoid overcharging of batteries or other conditions as described in Section 7 (Handling or Storage).

## 11. TOXICOLOGICAL INFORMATION

### SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE:

**Inhalation:** Under normal conditions of use and handling, no inhalation hazard is present. If battery is heated fumes from the electrolyte solution can cause moderate to severe irritation of the respiratory system.

**Skin or Eye Contact:** Under normal conditions of use and handling, no skin or eye hazard is present. If the battery case is punctured or otherwise damaged so that contact with the electrolyte solution occurs, contamination of the skin or eyes can be highly irritating or cause burns. Fumes from heated electrolyte solution will cause irritation of the eyes.

**Skin Absorption:** Some components of the electrolyte solution may be absorbed via intact skin. Due to the small amount of solution in the battery, significant toxic effect by this route of exposure is not expected.

**Ingestion:** Ingestion is not a likely route of exposure to the electrolyte solution.

**Injection:** Injection is not a likely route of exposure to the electrolyte solution.

### HEALTH EFFECTS OR RISKS FROM EXPOSURE:

**Acute:** There is no health hazard anticipated to occur during routine use of this product. If damage or heating of the battery occurs, contact with the electrolyte solution or fumes from heating of the solution may cause moderate to severe irritation of skin, eyes and respiratory system.

**Chronic:** In the unlikely event of exposure to the electrolyte solution, there is a potential for skin and/or respiratory sensitization.

**TARGET ORGANS:** **Acute:** Respiratory system, skin, eyes (fumes from thermal decomposition). **Chronic:** None under normal handling and use.

**TOXICITY DATA:** The following toxicity data are available for some components of the electrolyte solution only.

#### NICKEL DIHYDROXIDE:

LD<sub>50</sub> (Oral-Rat) 1515 mg/kg

LD<sub>50</sub> (Skin-Rat) > 2 g/kg

LD<sub>50</sub> (Subcutaneous-Mouse) 50 mg/kg

LC<sub>50</sub> (Inhalation-Rat) 4 hours = 1200 mg/m<sup>3</sup>

TD (Intramuscular-Rat) 60 mg/kg

TDLo (Intramuscular-Rat) 480 µg/kg

#### POTASSIUM HYDROXIDE:

Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Mild

Standard Draize Test (Skin-Guinea Pig) 500 mg: Mild

Standard Draize Test (Eye-Rabbit) 100 mg: Severe

Standard Draize Test (Eye-Rabbit) 750 µg/24 hours: Severe

LC<sub>50</sub> (Inhalation-Rat) 9060 mg/m<sup>3</sup>

LC<sub>50</sub> (Inhalation-Mouse) 1530 ppm/7 hours: Behavioral: analgesia; Lungs, Thorax, or

Respiration: dyspnea; Kidney/Ureter/Bladder: hematuria

LD<sub>50</sub> (Oral-Rat) 3089 mg/kg: Behavioral: tremor; Lungs, Thorax, or Respiration: dyspnea;

Nutritional and Gross Metabolic: weight loss or decreased weight gain

LD<sub>50</sub> (Oral-Rat) 3090 mg/kg: Behavioral: somnolence (general depressed activity), food intake

(animal); Kidney/Ureter/Bladder: other changes in urine composition

LD<sub>50</sub> (Oral-Mouse) 1774 mg/kg: Behavioral: somnolence (general depressed activity), tremor;

Lungs, Thorax, or Respiration: dyspnea

LD<sub>50</sub> (Skin-Rabbit) 960 µL/kg

LD<sub>50</sub> (Skin-Guinea Pig) 1 gm/kg: Behavioral: tremor; Lungs, Thorax, or Respiration: dyspnea;

Nutritional and Gross Metabolic: weight loss or decreased weight gain

TDLo (Oral-Rat) 11,700 mg/kg/6 weeks-intermittent: Kidney/Ureter/Bladder: hematuria;

Endocrine: changes in spleen weight; Blood: changes in erythrocyte (RBC) count

TDLo (Oral-Mouse) 16 gm/kg: female 7-14 day(s) after conception: Reproductive: Effects on

Newborn: stillbirth

LCLo (Inhalation-Rat) 2000 ppm/4 hours

#### POTASSIUM HYDROXIDE (continued):

TCLo (Inhalation-Rat) 400 ppm/6 hours/2 weeks-intermittent: Endocrine: changes in spleen weight; Blood: changes in other cell count (unspecified), changes in erythrocyte (RBC) count

TCLo (Inhalation-Rat) 425 mg/m<sup>3</sup>/6 hours/10 days-intermittent: Blood: changes in erythrocyte (RBC) count

TCLo (Inhalation-Rat) 100 ppm/6 hours: female 6-15 day(s) after conception: Reproductive: Specific Developmental Abnormalities: musculoskeletal system

TCLo (Inhalation-Rat) 400 ppm/6 hours: female 6-15 day(s) after conception: Reproductive: Maternal Effects: other effects; Specific Developmental Abnormalities: musculoskeletal system

TCLo (Inhalation-Rabbit) 2500 mg/m<sup>3</sup>/8 hours/12 days-intermittent: Related to Chronic Data: death

TCLo (Inhalation-Cat) 2500 mg/m<sup>3</sup>/8 hours/12 days-intermittent: Related to Chronic Data: death

#### SODIUM HYDROXIDE:

Standard Draize Test (Skin-Human) 2%/24 hours: Mild

LDLo (Oral-Human) 1.57 mg/kg: Behavioral: anorexia (human); Nutritional and Gross

Metabolic: body temperature increase; Skin and Appendages: primary irritation (after topical

exposure)

Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Severe

Standard Draize Test (Eye-Rabbit) 400 µg: Mild

Standard Draize Test (Eye-Rabbit) 1%: Severe

Standard Draize Test (Eye-Rabbit) 50 µg/24 hours: Severe

Standard Draize Test (Eye-Rabbit) 1 mg/24 hours: Severe

Standard Draize Test (Eye-Monkey) 1%/24 hours: Severe

Rinsed with Water (Eye-Rabbit) 1 mg/30 seconds: Severe

LD<sub>50</sub> (Intraperitoneal-Mouse) 40 mg/kg

TDLo (Oral-Rat) 44 mg/kg: Gastrointestinal: ulceration or bleeding from stomach

LDLo (Oral-Rabbit) 500 mg/kg

Cytogenetic Analysis (Parenteral- Insect-grasshopper) 20 mg

Cytogenetic Analysis (Hamster Lung) 10 mmol/L

Cytogenetic Analysis (Hamster Ovary) 16 mmol/L

**CARCINOGENICITY:** Components of the electrolyte solution are listed by agencies tracking the carcinogenic effect of chemical compounds. Some components of the case material are listed. Due to the physical nature of this product, carcinogenicity is not a hazard for this product; the information on carcinogenic potential for is given for informational purposes.

**NICKEL DIHYDROXIDE:** IARC-1 (Carcinogenic to Humans); MAK-1 (Substances that Cause Cancer in Man and Can Be Assumed to Make a Significant Contribution to Cancer Risk); NIOSH-Ca (Potential Occupation Carcinogen with No Further Categorization); NTP-K (Known to Be a Human Carcinogen)

**IRRITANCY OF PRODUCT:** This product is not irritating under normal circumstances of use or handling. Fumes from thermal decomposition are irritating by inhalation, skin or eye contact. Contact with the electrolyte solution may cause severe irritation or burns.

**SENSITIZATION TO THE PRODUCT:** Components of the electrolyte solution can cause skin and respirator sensitization. This effect is not expected to occur under normal handling, but may present a hazard if the outer case of the battery is broken and the electrolyte solution escapes.

REPRODUCTIVE TOXICITY INFORMATION: As an article, this product is not expected to cause mutagenic, embryotoxic, teratogenic, or reproductive effects in humans.

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## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**MOBILITY IN SOIL:** Due to the form of this product, it is unlikely that it will be mobile in the soil.

**PERSISTENCE AND BIODEGRADABILITY:** This product has not been tested for persistence or biodegradability. The case of this product will not biodegrade.

**BIO-ACCUMULATION POTENTIAL:** This product has not been tested for bio-accumulation potential. Under normal conditions, this product is contained and pose no risk to persons or the surrounding environment.

**ECOTOXICITY:** This product is not expected to cause significant harm to plant and animal-life; however, all disposal should be according to current regulations. This product has not been tested for aquatic toxicity. All release of this product into an aquatic or terrestrial environment should be prevented.

**RESULTS OF PBT and vPvB ASSESSMENT:** No data available. PBT and vPvB assessments are part of the chemical safety report required for some substances in European Union Regulation (EC) 1907/2006, Article 14.

**ENVIRONMENTAL EXPOSURE CONTROLS:** Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

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## 13. DISPOSAL CONSIDERATIONS

**WASTE TREATMENT AND DISPOSAL METHODS:** Dispose of in accordance with applicable International, Federal, State, and local procedures and standards. Batteries should be completely discharged prior to disposal and/ or the terminals taped or capped to prevent short circuit. When completely discharged it is not considered hazardous. These batteries must be handled in accordance with all applicable state and federal laws and regulations.

In the U.S. batteries are recyclable in the U.S. through the Rechargeable Battery Recycling Corporation's (RBRC) *Charge Up to Recycle!*

**Program.** For information call 1-800-8-BATTERY or see their website at [www.rbr.org](http://www.rbr.org).

In the EU manufacturing, handling and disposal of batteries is regulated under Directive 2006/66/EC. Specific information on disposal of batteries by country can be found at website of the European Portable Batteries Association ([http://www.epbaeurope.net/legislation\\_national.html](http://www.epbaeurope.net/legislation_national.html)).

**PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING:** Do not mix different types of batteries with different chemistries in the same containers for disposal.

**U.S. EPA WASTE NUMBER:** Not applicable.

**EWC WASTE CODE:** 16 06 05: Other batteries and accumulators. 16 06 06: Electrolyte from batteries and accumulators. 17 04 07 Mixed metals.

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## 14. TRANSPORTATION INFORMATION

**U.S. DEPARTMENT OF TRANSPORTATION 49 CFR 172.101:** This product is exempted from classification as Dangerous Goods, per regulations of the DOT unless shipped by vessel and as long as all provisions of Special Provision 130 and 340 are met (see below).

Special Provisions 130 and 340: Nickel metal hydride button cells/batteries are not subject to requirements of this subchapter except for the following .“Batteries and battery-powered device(s) containing batteries must be prepared and packaged for transport in a manner to prevent: (1) A dangerous evolution of heat; (2) Short circuits, including but not limited to the following methods: (i) Packaging each battery or each battery-powered device when practicable, in fully enclosed inner packagings made of non-conductive material; (ii) Separating or packaging batteries in a manner to prevent contact with other batteries, devices or conductive materials ( e.g., metal) in the packagings”.

When shipped by vessel, the following classification is applicable.

<b>UN Identification Number:</b>	UN 3496
<b>Hazard Materials Description and Proper Shipping Name:</b>	Batteries, nickel-metal hydride sealed, n.o.s.
<b>Hazard Class or Division:</b>	9 (Miscellaneous)
<b>Packing Group:</b>	None
<b>Label Codes:</b>	Class 9 (Miscellaneous)
<b>Special Provisions:</b>	340
<b>Packaging:</b>	None
<b>Quantity Limitations:</b>	None
<b>Vessel Storage:</b>	Location: A; Other: 25
<b>Emergency Response Guidebook Number (2012):</b>	171
<b>Marine Pollutant:</b>	The Nickel Dihydroxide and Cobalt Dihydroxide components meet the criteria of Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This product is classified as Dangerous Goods, per regulations of Transport Canada. The use of the above U.S. DOT information from the U.S. 49 CFR regulations is allowed for shipments that originate in the U.S.

<b>UN Identification Number:</b>	UN 3496
<b>Proper Shipping Name:</b>	Batteries Nickel-Metal Hydride
<b>Hazard Class Number and Description:</b>	9 (Miscellaneous)
<b>Packing Group:</b>	None
<b>Special Provisions:</b>	97
<b>Hazard Label(s) Required:</b>	Class 9 (Miscellaneous)
<b>Explosive Limit and Limited Quantity Index:</b>	0
<b>Excepted Quantities:</b>	E0
<b>ERAP Index:</b>	None
<b>Passenger Carrying Ship Index:</b>	None
<b>Passenger Carrying Road or Rail Vehicle Index:</b>	None
<b>Marine Pollutant:</b>	The Nickel Dihydroxide and Cobalt Dihydroxide components meet the criteria of Marine Pollutant under Transport Canada regulations, as per TDG 2.7.

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## 14. TRANSPORTATION INFORMATION (Continued)

**INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA):** The batteries are considered not restricted once the shipper complies with Special Provision A199. This may involve the freight forwarder correctly indicating the required text on the air waybill, when an air waybill is used. The UN number UN 3496 is only applicable in sea transport. Nickel-metal hydride batteries or nickel-metal hydride battery-powered devices, equipment or vehicles having the potential of a dangerous evolution of heat are not subject to these Regulations provided they are prepared for transport so as to prevent:

- (a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals); and,
- (b) unintentional activation.

The words 'Not Restricted' and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

**INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO):** This product is classified as dangerous goods, per the International Maritime Organization.

<u>UN No.:</u>	3496
<u>Proper Shipping Name:</u>	Batteries, Nickel-Hydride
<u>Hazard Class Number:</u>	9 (Miscellaneous)
<u>Hazard Label:</u>	Class 9 (Miscellaneous)
<u>Packing Group:</u>	None
<u>Special Provisions:</u>	117, 963
<u>Limited Quantities:</u>	None
<u>Excepted Quantities:</u>	E0
<u>Packing Instructions:</u>	Instructions: See SP963, Provisions: None
<u>IBC Information:</u>	Instructions: IBC08, Provisions: None
<u>Tanks:</u>	Instructions: None, Provisions: None
<u>EmS:</u>	F-A, S-I
<u>Stowage Category:</u>	Category A, SWI
<u>Segregation:</u>	None.

Marine Pollutant: The Nickel Dihydroxide and Cobalt Dihydroxide components meet the criteria of Marine Pollutant under UN criteria.

**EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):** This product is not subject to UN ADR regulations.

**AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL:** This product is classified as dangerous goods under the Australian Dangerous Goods Code only when shipped by vessel.

<u>UN No.:</u>	3496
<u>Name and Description:</u>	Batteries, Nickel-Hydride
<u>Class or Division:</u>	9 (Miscellaneous)
<u>Packing Group:</u>	None
<u>Labels:</u>	Class 9 (Miscellaneous)
<u>Special Provisions:</u>	117
<u>Limited Quantities:</u>	0
<u>Packing and IBCs:</u>	Instructions: None; Special Packing Provisions: None
<u>Portable Tanks and Bulk Containers:</u>	Instructions: None, Special Provisions: None
<u>Hazard Identification No.:</u>	None
<u>HazChem Code:</u>	2Y

**IN BULK ACCORDING TO THE IBC CODE:** See the information under the individual jurisdiction listings for IBC information.

**ENVIRONMENTAL HAZARDS:** Some components meet the criteria of environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID, and ADN) as indicated in this Section; this product is shipped according to the applicable transportation regulations listed on this SDS:

- ❖ U.S. Department of Transportation (DOT) Subchapter C of the Hazardous Materials Regulations,
- ❖ UN Recommendations on the Transport of Dangerous Goods,
- ❖ International Civil Aviation Organization (ICAO) Technical Instruction for the Safe Transport of Dangerous Goods by Air,
- ❖ International Aviation Transportation Association (IATA) Dangerous Goods Regulations,
- ❖ International Maritime Organization (IMO),
- ❖ Transport Canada Transportation of Dangerous Goods Regulations (TDG),
- ❖ European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR),
- ❖ Singapore Standard 286: Part A, and
- ❖ Australian Federal Office of Road Safety Code for the Transportation of Dangerous Goods by Road or Rail.

This product may be shipped according to the special provisions, exceptions and exemptions specified in the regulations listed above. Always refer to the latest transportation regulations prior to shipping this product as regulations may have changed.

## 15. REGULATORY INFORMATION

**INTERNATIONAL CHEMICAL INVENTORIES:** This product is considered an article under the chemical inventories listed below and consequently is exempt from listing on these inventories:

- U.S. EPA Toxic Substance Control Act (TSCA)
- Canadian DSL Inventory
- Canadian Chemical Registration Regulations (NDSL/DSL)
- European Inventory of Existing Chemical Substances (EINECS/ELINCS)
- Singapore Code of Practice on Pollution Control Requirements
- Australian Inventory of Chemical Substances (AICS)
- Japanese Existing and New Chemical Substance List (ENCS)
- Korean Existing Chemicals List (ECL)
- Chinese Inventory of Existing Chemicals List (IESCS)

However, based on the rules enforced with regards to the marketing and use of chemicals to manufacture this product, each chemical component of this finished product has been listed or exempt from the listed chemical inventories.

## 15. REGULATORY INFORMATION (Continued)

**OTHER INTERNATIONAL REGULATIONS:** As an article this product has no requirements under the following U.S. and International regulations:

- U.S. SARA Reporting & Threshold Planning Quantity (TPQ) Requirements
- U.S. CERCLA Reportable Quantity (RQ)
- California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)
- Canadian WHMIS Regulations (Hazardous Products Act, 6&7, Part II (Sections 11 and 12)).
- Canadian Environmental Protection Agency (CEPA) Priorities Substances Lists
- European Union CLP EC 1272/2008: Labeling and Classification
- European Union REACH
- Australian Workplace Standard
- Australian Standard for the Uniform Scheduling of Drugs and Poisons
- Japanese Minister of International Trade and Industry (MITI).
- Japanese Poisonous and Deleterious Substances Control Law
- Singapore Code of Practice on Pollution Control Requirements
- New Zealand HNSO Regulations

### EUROPEAN UNION REGULATIONS:

**CHEMICAL SAFETY ASSESSMENT:** No Data Available. The chemical safety assessment is required for some substances according to European Union Regulation (EC) 1907/2006, Article 14.

**Substances of Very High Concern (SVHC) Status:** Undetermined.

**EU RoHS Directive 2011/65/EU:** Internal circuitry of this battery is RoHS compliant.

## 16. OTHER INFORMATION

**GLOBAL HARMONIZATION, U.S. OSHA HAZARD COMMUNICATION STANDARD, CANADIAN WHMIS HPR-GHS 2015, EU CLP REGULATION (EC) 1272/2008 LABELING AND CLASSIFICATION, JAPANESE JIS Z 7253: 2012 LABELING AND CLASSIFICATION, KOREAN ISHA (Notice 2009-68) LABELING AND CLASSIFICATION, NEW ZEALAND HAZARDOUS SUBSTANCES and NEW ORGANISMS ACT (HNSO) CHEMICAL CLASSIFICATION (COP 8-1 09-06), OR AUSTRALIAN NOHSC STANDARDS:** This product is an article and is not required to be classified under any jurisdiction.

**Component Classification for Electrolyte Solution (component classification for the case and electrode components is not given):**

**Cobalt Dihydroxide:** The following is a self-classification, as required under CLP 1272/2008.

**Classification:** Carcinogenic Category 1A, Reproductive Toxicity Category 1B, Acute Oral Toxicity Category 4, Acute Inhalation Toxicity Category 4, Skin Irritation Category 2, Eye Damage Category 1, Skin Sensitization Category 1, Respiratory Sensitization Category 1, Aquatic Acute Toxicity Category 1, Aquatic Chronic Toxicity Category 1, Metal Corrosion Category 1

**Hazard Statements:** H350i: May cause cancer by inhalation. H360D: May damage the unborn child. H302 + H332: Harmful if swallowed or inhaled. H410: Very toxic to aquatic life with long-lasting effects. H290: May be corrosive to metals.

**Nickel Dihydroxide:** The following is an official published Harmonised Classification under CLP 1272/2008 as well as a self-classification as required under the regulation.

**HARMONISED EU CLP CLASSIFICATION**

**Classification:** Germ Cell Mutagen Category 2, Carcinogenic Category 1B, Reproductive Toxicity Category 1B, Skin Sensitization Category 1, Respiratory Sensitization Category 1, Specific Target Organ Toxicity (Inhalation-Lungs) Repeated Exposure Category 1, Aquatic Acute Toxicity Category 1, Aquatic Chronic Toxicity Category 1

**Hazard Statements:** H341: Suspected of causing genetic effects. H350i: May cause cancer by inhalation. H360D: May damage the unborn child. H317: May cause an allergic skin reaction. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H371: Causes damages to lungs through prolonged or repeated exposure by inhalation. H410: Very toxic to aquatic life with long-lasting effects.

**ADDITIONAL SELF-CLASSIFICATION**

**Classification:** Acute Oral Toxicity Category 4, Acute Inhalation Toxicity Category 4, Skin Irritation Category 2, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Category 3, Metal Corrosion Category 1

**Hazard Statements:** H302 + H332: Harmful if swallowed or inhaled. H372: Causes damages to lungs through prolonged or repeated exposure by inhalation. H290: May be corrosive to metals.

**Potassium Hydroxide:** The following is an official published Harmonised Classification under CLP 1272/2008.

**Classification:** Skin Corrosion Category 1A, Acute Oral Toxicity Category 4, Metal Corrosion Category 1

**Hazard Statements:** H314: Causes severe skin burns and eye damage. H302: Harmful if swallowed. H290: May be corrosive to metals.

**Sodium Hydroxide:** The following is an official published Harmonised Classification under CLP 1272/2008.

**Classification:** Skin Damage/Corrosion Category 1A, Metal Corrosion Category 1

**Hazard Statements:** H314: Causes severe skin burns and eye damage. H290: May be corrosive to metals.

**REFERENCES AND DATA SOURCES:** Contact the supplier for information.

**METHODS OF EVALUATING INFORMATION FOR THE PURPOSE OF CLASSIFICATION:** Bridging principles were used to classify this product.

**REVISION DETAILS:** November 2016: Review and up-date as necessary for current GHS and shipping classification, as well as exposure limits.

**PREPARED BY:** CHEMICAL SAFETY ASSOCIATES, Inc. • PO Box 1961, Hilo, HI 96721 • (800) 441-3365 • (808) 969-4846

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