SAFETY DATA SHEET

Prepared to U.S. OSHA 29 CFR 1910.1200 (2012), Canadian WHMIS 2015 (HPR-GHS), European Union CLP EC 1272/2008, REACH, Australian WorkSafe, the Japanese Industrial Standard JIS Z7253, 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

1.1 PRODUCT IDENTIFIER USED ON LABEL

1.1.1 Product Identifier: **BMP-71 NICKEL METAL HYDRIDE BATTERY PACK**

1.1.3 Other Means of Identification: Nickel Metal Hydride Battery Pack

1.1.3.1 Brady Model Number: BMP-71 BATT; M71-BATT

1.2 RECOMMENDED USE of the PRODUCT and RESTRICTIONS on USE

1.1.4 Product Use: Nickel Metal Hydride Battery Pack (Metal Hydride Chemistry)

1.1.5 UN Number: For Shipments by Vessel only: UN 3496;

Shipment via ground or air is not classified by any modality as long as packing requirements are met to prevent a short circuit or unintentional activation.

1.1.6 Hazchem Code (Australia): 2Y

1.1.7 HIN: (1)

1.3 NAME, ADDRESS and TELEPHONE NUMBER of CHEMICAL MANUFACTURER, IMPORTER or OTHER RESPONSIBLE PARTY

1.3.1 U.S. Supplier/Manufacturer's Name: Brady Worldwide Inc.
6555 West Good Hope Road, Milwaukee, WI 53223, USA
Business Phone: (414) 358-6600 [8am – 5pm CT]

1.3.2 European Supplier/ Distributor's Name: WH Brady NV

1.3.2.1 Address: Lindestraat 20, Industriepark C3, B - 9240 Zele, Belgium

1.3.2.2 Business Phone: 0032/(0)52.45.79.05 [9 am to 5 pm]

1.3.4 Emergency Phone: Infotrac: 1-800-535-5053 (U.S. and Canada) [24 hours]

1.3.5 Email: REACH_Americas@bradycorp.com

1.4 DATE OF PREPARATION: October 13, 2015

1.5 DATE OF REVISION: October 23, 2020

NOTE1: IATA and IMDG information given in Section 14 (Transportation Information) is based on regulations and standards that go into effect January 1, 2021 and are valid until December 31, 2021. Information on shipping regulations for each jurisdiction is given in Section 14, are the most current as of the date of revision of this SDS; specific version references are given in this section.

NOTE 2: 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

2.1 GLOBAL HARMONIZATION LABELING AND CLASSIFICATION: 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 for the user's information only.

2.2 HAZARD OVERVIEW:

2.2.1 Product Description: This product is a nickel metal hydride battery consisting of sealed outer case, formed electrodes and electrolyte solution.

2.2.2 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, a suspect mutagen and reproductive toxin.

2.2.3 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.

2.2.4 Reactivity Hazards: The electrolyte solution can react with water to form hydrochloric acid. Contact with the anodes can produce hydrogen gas.

2.2.5 Other Hazards: Physical damage to the battery, exposure to rain or water or freezing temperatures can cause battery to fail and may result in fire. Exposure to oils or solvents can damage the case and cause failure. During fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

2.2.6 Environmental Hazards: This product is not expected to cause harm if released to the environment.

2.2.7 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.

2.3 PERCENT OF UNKNOWN ACUTE TOXICITY: Not applicable for articles.

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 case of the battery:								
Aluminum (non-pyrophoric solid)	7429-90-5	231-072-3	Mineral-exempt	Listed	KE-00881	HSR001263 (coated, PGII) HSR001471 (coated, PGIII) HSR001472 (uncoated, PGII) HSR001473 (coated, PGIII)	Proprietary	Classification under All Jurisdictions: Not Applicable for solid metal.
Copper	7440-50-8	231-159-6	Mineral-exempt	Listed	KE-08896	HSR002948	Proprietary	Classification under All Jurisdictions: Not Applicable for solid metal.
Plastic	Mixture	Mixture	Mixture	Mixture	Mixture	Mixture	Proprietary	Classification under All Jurisdictions: Not Applicable.
Polyvinylidene Fluoride (PVDF)	24937-79-9	Exempt as a Polymer	6-933	Listed	KE-10546	May be used as a single component chemical under an appropriate group standard	Proprietary	Classification under All Jurisdictions: Not Applicable.
Steel	7439-89-6	231-096-4	Mineral-exempt	Listed	KE-21059		Proprietary	Classification under All Jurisdictions: Not Applicable for solid metal.
Nickel, inert polymers and other trace compounds:							Balance	Classification under All Jurisdictions: Not Applicable.
The following materials are in the electrolyte mixture in the battery:								
Cerium	7440-45-1	231-154-9	Mineral-exempt	Listed	KE-05379	HSR006252	Proprietary	NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2 Hazard Statement Codes: H228 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, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Cat. 3, Aquatic Chronic Cat. 3 Hazard Statement Codes: H302 + H312 + H332, H315, H319, H335, H413 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, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Cat. 3, Aquatic Chronic Cat. 3 Hazard Statement Codes: H228, H302 + H312 + H332, H315, H319, H335, H413
Cobalt Powder	7440-48-4	231-158-0	Mineral-exempt	Listed	KE-06060	HSR002946	Proprietary	HARMONISED EU CLP CLASSIFICATION Classification under All Jurisdictions: Classification: Germ Cell Mutagen Cat. 2, Carcinogenic Cat. 1B, Reproductive Toxicity Cat. 1B, Skin Sensitization Cat. 1, Respiratory Sensitizer Cat. 1, Aquatic Chronic Toxicity Cat. 4 Hazard Statement Codes: H341, H350, H360F, H317, H334, H413 ADDITIONAL NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions: Classification: Acute Inhalation Toxicity Cat. 3, Acute Oral Toxicity Cat. 4, Eye Irritation Cat. 4, Specific Target Organ Toxicity (Inhalation-Lungs) Single Exposure Cat. 1, Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1 Hazard Statement Codes: H331, H372, H400, H410
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	NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Flammable Solid Cat. 2 Hazard Statement Codes: H228 ADDITIONAL SELF-CLASSIFICATION Classification under All Jurisdictions, except Korea: Classification: Skin Irritation Cat. 2, Eye Irritation Cat. 2A Hazard Statement Codes: H315, H319 Classification Under Korean ISHA: Classification: Flammable Solid Cat. 2, Skin Irritation Cat. 2, Eye Irritation Cat. 2 Hazard Statement Codes: H228, H315, H319
Neodymium	7440-00-8	231-109-3	Mineral-exempt	Listed	KE-25784		Proprietary	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 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

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

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 in the electrolyte mixture in the battery:								
Praseodymium	7440-10-0	231-120-3	Mineral-exempt	Not 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	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 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
Nickel foam	7440-02-0	231-111-4	Mineral-exempt	Listed	KE-08896	HSR002948	Proprietary	NOTIFIED ECHA CLASSIFICATION Classification under All Jurisdictions: Classification: Germ Cell Mutagen Cat. 2, Carcinogenic Cat. 2, Skin Sensitization Cat. 1, Specific Target Organ Toxicity (Inhalation-Lungs) Repeated Exposure Cat. 1, Aquatic Chronic Toxicity Cat. 3 Hazard Statement Codes: H341, H351, H317, H372, H413
The following materials are for the battery cell electrodes:								
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 Classification under All Jurisdictions: Classification: Germ Cell Mutagen Cat. 2, Carcinogenic Cat. 1A, Reproductive Toxicity Cat. 1B, Acute Oral Toxicity Cat. 4, Acute Inhalation Toxicity Cat. 4, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Respiratory Sensitization Cat. 1, Specific Target Organ Toxicity (Inhalation-Lungs) Repeated Exposure Cat. 1, Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1 Hazard Codes: H341, H350i, H360D, H315, H317, H332, H334, H372, H410 ADDITIONAL SELF-CLASSIFICATION Classification under All Jurisdictions: Classification: Metal Corrosion Cat. 1 Hazard Codes: H290
Potassium Hydroxide	1310-58-3	215-181-3	1-369	Listed	KE-29139	HSR001546	Proprietary	HARMONISED EU CLP CLASSIFICATION Classification under All Jurisdictions: 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 Classification under All Jurisdictions: 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 is required.
See Section 16 for full text of classification.

4. FIRST-AID MEASURES

4.1 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.

4.2 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:

4.2.1 GHS Precautionary Statements for Eye, Skin, Inhalation or Ingestion: None applicable to articles.

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

4.2.3 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.

4.2.4 Ingestion: Not a potential route of exposure.

4.3 MOST IMPORTANT SYMPTOMS and EFFECTS, WHETHER ACUTE OR DELAYED:

4.3.1 Acute: See Section 11.

4.3.2 Chronic: See Section 11.

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

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

5. FIRE-FIGHTING MEASURES

5.1 FLASH POINT: Not applicable.

5.2 AUTOIGNITION TEMPERATURE: Not applicable.

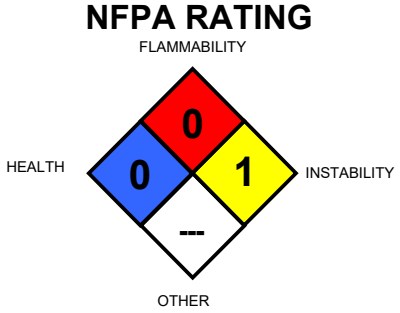
5.3 FLAMMABLE LIMITS (in air by volume, %): Not applicable.

5.4 FIRE EXTINGUISHING MEDIA: Fires involving nickel metal hydride batteries should be extinguished with a Class D (combustible metal) smothering extinguishing agent that excludes the oxygen from the atmosphere such as METL-X, dry sand, dolomite, and soda ash.

5.5 UNSUITABLE FIRE EXTINGUISHING MEDIA: Water.

5.6 SPECIFIC HAZARDS ARISING FROM THE PRODUCT: Batteries can explode in a fire. Contact with the electrolyte solution and water can produce hydrofluoric acid. Contact with water and the charged anode will produce hydrogen gas. Products of thermal decomposition can include toxic gases (e.g. carbon, nickel, cobalt, and lanthanum oxides). Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors. During fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

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



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

5.7 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: 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).

6.2 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.

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

6.2.2 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.**

6.3 METHODS FOR CONTAINMENT AND CLEANING-UP: 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. The following information is in the event that the electrolyte solution has somehow escaped the case of the battery.

6.3.1 Small Spills: Wipe up spilled liquid with polypads or other suitable absorbent materials. Wash contaminated area with soap and water, absorb with paper towels, and rinse with water.

6.3.2 Large Spills: Trained personnel following pre-planned procedures should handle non-incidental 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 bellow exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, before non-response personnel are allowed into the spill area.

6.3.3 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.

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

6.5 REFERENCE TO OTHER SECTIONS: See information in Section 8 (Exposure Controls – Personal Protection) and Section 13 (Disposal Considerations) for additional information.

7. HANDLING and STORAGE

7.1 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.

7.1.1 The following information is from the Brady Nickel-Metal Hydride Battery Instructions and Precautions document:

7.1.11 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.

7.1 PRECAUTIONS FOR SAFE HANDLING (continued):

7.1.1.1 Nickel-Metal Hydride Battery Handling Precautions (continued)

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.

7.1.1.2 GHS Statements for Safe Handling: None applicable for articles.

7.2 CONDITIONS FOR SAFE STORAGE INCLUDING ANY IMCOMPATIBILITIES: Do not expose the battery pack or printer to water or rain or allow them to get wet. This may damage the battery pack or printer. 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. Charger will charge the battery when the battery's internal temperature is between 0°C (32°F) and 45°C (113°F). When the battery pack temperature range is outside that range, charging will not occur. Dispose of Brady Nickel Methyl Hydride Batteries according to federal, state and local regulations. Contact a recycling agency in your area for recycle locations.

7.1.1.2 GHS Statements for Safe Storage: None applicable for articles.

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

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

8.1 EXPOSURE LIMITS/CONTROL PARAMETERS:

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

8.1.2 U.S. Exposure Limits/Control Parameters: The following limits are for the components of the electrolyte solution only. Only components that have exposure limits are given.

8.1.2.1 - Nickel Hydroxide:
NIOSH RELs TWA: 0.015 ppm, as Nickel, See Pocket Guide Appendix A
NIOSH RELs STEL: See Pocket Guide Appendix A
DFG MAKs: Inhalable Fraction: Danger of sensitization of the airways and skin.

8.1.2.2 - Potassium Hydroxide:
ACGIH TLVs STEL: 2 mg/m^3 (ceiling)
NIOSH RELs STEL: 2 mg/m^3 (ceiling)

8.1.2.3 - Sodium Hydroxide:
ACGIH TLV STEL: 2 mg/m^3 (ceiling)
OSHA PELs STEL: 2 mg/m^3 (ceiling)
NIOSH RELs STEL: 2 mg/m^3 (ceiling)

8.1.3 Additional International Exposure Limits: Additional international limits are in place for components. Exposure limits can change or be added and should be checked for currency.

Nickel Hydroxide

	Limit Value - Eight Hours	Limit Value - Short Term
Finland	0.05 mg/m³ (1) 0.01 mg/m³ (2)	
France	1 mg/m³	
Spain	0.1 mg/m³ (as Ni)	
	Remarks	
Finland	(1) Inhalable fraction (2) Respirable fraction.	
Spain	Sensitizer	

Potassium Hydroxide

	Limit Value - Eight Hours	Limit Value - Short Term
Australia		2 mg/m³ (1)
Austria	2 mg/m³ (inhalable aerosol)	
Belgium		2 mg/m³ (1)(2)
Canada (Ontario)		2 mg/m³ (1)
Canada (Québec)		2 mg/m³ (1)
Denmark	2 mg/m³	2 mg/m³ (1)(2)
Finland		2 mg/m³ (1)
France		2 mg/m³
Hungary		2 mg/m³
Ireland	0.1 mg/m³	2 mg/m³ (1)
Japan - JSOH	2 mg/m³ (1)	
New Zealand		2 mg/m³ (1)
People's Republic of China		2 mg/m³ (1)

8.1 EXPOSURE LIMITS/CONTROL PARAMETERS (continued):

8.1.3 Additional International Exposure Limits (continued):

Potassium Hydroxide (continued)

	Limit Value - Eight Hours	Limit Value - Short Term
Poland	0.5 mg/m³	1 mg/m³
Romania	1 mg/m³	3 mg/m³ (1)
Singapore		2 mg/m³
South Korea		2 mg/m³ (1)
Spain	2 mg/m³	
Sweden	1 mg/m³ (1)	2 mg/m³ (1)
Switzerland	2 mg/m³ (inhalable aerosol)	
United Kingdom		2 mg/m³

	Remarks
Australia	(1) Ceiling limit value.
Belgium	(1) Additional indication 'M' means that irritation occurs when the exposure exceeds the limit value or there is a risk of acute poisoning. The work process must be designed in such a way that the exposure never exceeds the limit value. For evaluation, the samples period should be as short as possible. However, the sampled period shall be long enough to perform a reliable measurement. The measured result shall be related to the considered.
Canada (Ontario)	(1) Ceiling limit value.
Canada (Québec)	(1) Ceiling limit value.
Denmark	(1) Ceiling limit value. (2)
Finland	(1) Ceiling limit value.
Ireland	15 minutes reference period.
Japan (JSOH)	(1) Occupational exposure limit ceiling: Reference value to the maximal exposure concentration of the substance during a working day.
New Zealand	(1) Ceiling limit value.
People's Republic of China	(1) Ceiling limit value.
South Korea	(1) Ceiling limit value.
Sweden	(1) 15 minutes average value.

Sodium Hydroxide

	Limit Value - Eight Hours	Limit Value - Short Term
Australia		2 mg/m³ (1)
Austria	2 mg/m³ (inhalable aerosol)	4 mg/m³ (inhalable aerosol)
Belgium	2 mg/m³ (1)	
Canada (Ontario)		2 mg/m³ (1)
Canada (Québec)		2 mg/m³ (1)
Denmark	2 mg/m³	2 mg/m³ (1)
Finland		2 mg/m³ (1)
France	2 mg/m³	2 mg/m³
Hungary	2 mg/m³	2 mg/m³
Ireland	0.1 mg/m³	2 mg/m³ (1)
Japan - JSOH	2 mg/m³ (1)	
Latvia	0.5 mg/m³	
New Zealand		2 mg/m³ (1)
People's Republic of China		2 mg/m³ (1)
Poland	0.5 mg/m³	1 mg/m³
Romania	1 mg/m³	3 mg/m³ (1)
Singapore		2 mg/m³
South Korea		2 mg/m³ (1)
Spain	2 mg/m³	
Sweden	1 mg/m³ (1)	2 mg/m³ (1)(2)
Switzerland	2 mg/m³ (inhalable aerosol)	2 mg/m³ (inhalable aerosol)
United Kingdom		2 mg/m³

	Remarks
Australia	(1) Ceiling limit value.
Belgium	(1) Additional indication 'M' means that irritation occurs when the exposure exceeds the limit value or there is a risk of acute poisoning. The work process must be designed in such a way that the exposure never exceeds the limit value. For evaluation, the samples period should be as short as possible. However, the sampled period shall be long enough to perform a reliable measurement. The measured result shall be related to the considered.
Canada (Ontario)	(1) Ceiling limit value.
Canada (Québec)	(1) Ceiling limit value.
Denmark	(1) Ceiling limit value.
Finland	(1) Ceiling limit value.
Ireland	15 minutes reference period.
Japan (JSOH)	(1) Occupational exposure limit ceiling: Reference value to the maximal exposure concentration of the substance during a working day.
New Zealand	(1) Ceiling limit value.
People's Republic of China	(1) Ceiling limit value.
South Korea	(1) Ceiling limit value.
Sweden	(1) 15 minutes average value.

8.1.3 Australian Hazardous Chemical Information System (HMIS) Exposure Standards:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR		
		TWA mg/m³	STEL mg/m³	Notes
Potassium Hydroxide	1310-73-2	2 PEAK	----	----
Sodium Hydroxide	1310-73-2	2 PEAK	----	----

NE = Not Established.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

8.1 EXPOSURE LIMITS/CONTROL PARAMETERS (continued):

8.1.3 Additional International Exposure Limits (continued):

8.1.4 UK Minimum Exposure Limits:

CHEMICAL NAME	CAS #	WORKPLACE EXPOSURE LIMIT				
		Long-Term Exposure Limit (8-Hrs TWA Reference Period)		Short-Term Exposure Limit (15-minute Reference Period)		Comments
		ppm	$mg.m^{-3}$	ppm	$mg.m^{-3}$	The Carcin, Sen and Skin notations are not exhaustive. Notations have been applied to substances identified in IOELV Directives
Potassium Hydroxide	1310-58-3	NE	NE	NE	2	Not Applicable
Nickel Dihydrate	12048-48-7	NE	0.1	NE	NE	SK, Carcinogen
Sodium Hydroxide	1310-73-2	NE	NE	NE	2	Not Applicable

NE = Not Established.

8.1.5 ACGIH Biological Exposure Indices (BEIs): Currently, no Biological Exposure Indices (BEIs) have been established components.

8.1.6 UK Biological Monitoring Guidance Values (BMGVs): Currently, no BMGVs have been established for the components of the electrolyte solution.

8.2 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.

8.3 INDIVIDUAL MEASURES SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE): 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.

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

8.3.2 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.

8.3.4 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 another appropriate glove.

8.3.5 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

9.1 FORM: Manufactured article containing electrolyte solution.
9.2 COLOR: Various parts have different colors.
9.3 MOLECULAR FORMULA: Mixture.
9.4 MOLECULAR WEIGHT: Mixture.
9.5 ODOR: Not applicable.
9.6 ODOR THRESHOLD: Not applicable.
9.7 RELATIVE VAPOR DENSITY (air = 1): Not applicable.
9.8 EVAPORATION RATE: Not applicable.
9.9 SPECIFIC GRAVITY (water = 1): Not available.
9.10 MELTING/FREEZING POINT: Not available.
9.11 SOLUBILITY IN WATER: Insoluble.
9.12 BOILING POINT: Not applicable.
9.13 VAPOR PRESSURE: Not applicable.
9.14 pH: Not applicable.
9.15 HEAT OF COMBUSTION: Not available.
9.16 THERMAL CONDUCTIVITY: Not available.
9.17 FLAMMABILITY: Not flammable.
9.18 FLASH POINT: Not applicable.
9.19 FLAMMABLE LIMITS (in air by volume, %): Not applicable.
9.20 AUTOIGNITION TEMPERATURE: Not available.
9.21 OXIDIZING PROPERTIES: Not an oxidizer.
9.22 EXPLOSIVE PROPERTIES: Heating or water contact may cause overpressure of outside casing and possible explosive result.
9.23 COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

10. STABILITY and REACTIVITY

10.1 REACTIVITY: The electrolyte solution can react with water.

10.1 CHEMICAL STABILITY: Stable under normal conditions of use and handling.

10.2 DECOMPOSITION PRODUCTS:

10.2.1 Combustion: Carbon, nickel, cobalt, and lanthanum oxides).

10.2.2 Hydrolysis: Contact with the electrolyte solution and water can produce hydrofluoric acid. Contact with water and the charged anode will produce hydrogen gas.

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

10.4 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. Polymerization will not occur.

10.5 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

11.1 SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE:

11.1 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.

11.2 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 as the electrolyte solution is highly corrosive. Fumes from heated electrolyte solution will cause irritation of the eyes. Contact with the electrodes may result in electric shock under certain circumstances of contact.

11.3 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.

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

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

11.2 DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT AND LONG-TERM EXPOSURE:

11.2.1 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.

11.2.2 Chronic: None known.

11.3 TARGET ORGANS:

11.3.1 Acute: Respiratory system, skin, eyes (fumes from thermal decomposition).

11.3.2 Chronic: None.

11.4 TOXICITY DATA FOR PRODUCT, INCLUDING ATEs: Not applicable for an article.

11.5 TOXICITY DATA FOR COMPONENTS OF THE ELECTROLTE SOLUTION: The following toxicity data are presented for components of the electrolyte solution only.

Nickel Dihydroxide:
LD_{50} (Oral-Rat) 1515 mg/kg
LD_{50} (Skin-Rat) > 2000 mg/kg
LC_{50} (Inhalation-Rat) 4 hours = 1200 mg/m^3

Potassium Hydroxide:
Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Mild
Standard Draize Test (Eye-Rabbit) 750 µg/24 hours: Severe
LC_{50} (Inhalation-Rat) 9060 mg/m^3
LD_{50} (Oral-Rat) 3089-3090 mg/kg: Behavioral: tremor; Lungs, Thorax, or Respiration: dyspnea; Nutritional and Gross Metabolic: weight loss or decreased weight gain, somnolence (general depressed activity), food intake (animal); Kidney/Ureter/Bladder: other changes in urine composition

Potassium Hydroxide (continued):
LD_{50} (Skin-Rat) 333-888 mg/kg
LD_{50} (Skin-Rabbit) 960 µL/kg

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

11.6 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)

11.7 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.

11.8 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.

11.9 REPRODUCTIVE TOXICITY INFORMATION: As an article, this product is not expected to cause mutagenic, embryotoxic, teratogenic, or reproductive effects in humans. The Nickel Dihydroxide component of the electrolyte solution is a suspect mutagen and reproductive toxin.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

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

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

12. ECOLOGICAL INFORMATION (Continued)

12.3 BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential. Some materials within the cell are bio-accumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

12.4 ECOTOXICITY: This product is not expected to cause significant harm to plant and animal-life in its current form; 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.

12.5 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. No component is known to present a PBT or vPvB hazard

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

13. DISPOSAL CONSIDERATIONS

13.1 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. Nickel-metal hydride batteries must be handled in accordance with all applicable state and federal laws and regulations.

13.1.1 U.S. Battery Disposal: In the U.S. nickel-metal hydride 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.rbrc.org.

13.1.2 EU Battery Disposal: 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).

13.2 PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING: Do not mix different types of batteries with different chemistries in the same containers for disposal. Electrodes of each battery should be covered to prevent contact with other batteries, if packed together, to prevent possible fire.

13.3 U.S. EPA WASTE NUMBER: Nickel hydride batteries may be fall into the EPA 'Universal Waste Regulations' category (40 CFR 273.2). Before a battery generated from a business or other non-household facility would be subject to the universal waste rules, it must meet the definition of a hazardous waste. If a nickel hydride battery does not exhibit any characteristic of a hazardous waste (ignitability, corrosivity, reactivity, reactivity, or toxicity), you are not required to manage it as a universal waste or a hazardous waste.

Some nickel hydride batteries can be hazardous for the toxicity characteristic, due to the presence of heavy metals.

Under Universal Waste Regulation rules, the batteries can be sent to another universal waste handler, including a recycler, many of which accept nickel-metal hydride batteries, or to a permitted universal waste destination facility. If you manage such batteries as universal waste, you must:

1) Package any batteries that show signs of leakage, spillage or damage in closed containers;
2) Mark the universal waste batteries or their containers with the words "Universal Waste Battery(ies)," "Waste Batter(ies)" or "Used Battery(ies);"
3) Develop a method that clearly demonstrates the length of time the batteries have been accumulated from the date they became a waste or are received; and
4) Ensure delivery of the batteries to another universal waste handler or a permitted destination facility.

13.3.1 Labeling/Marking Requirements for Universal Waste Batteries per 40 CFR 273.14

A small quantity handler of universal waste must label or mark the universal waste to identify the type of universal waste as specified below:

13.3.1.1 (a) Universal waste batteries (i.e., each battery), or a container in which the batteries are contained, must be labeled or marked clearly with any one of the following phrases: "Universal Waste -- Battery(ies)," or "Waste Battery(ies)," or "Used Battery(ies)."

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

14. TRANSPORTATION INFORMATION

14.1 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:

Provision 130:

(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"; or

(iii) Ensuring exposed terminals or connectors are protected with non-conductive caps, non-conductive tape, or by other appropriate means; and

(3) Damage to terminals. If not impact resistant, the outer packaging should not be used as the sole means of protecting the battery terminals from damage or short circuiting. Batteries must be securely cushioned and packed to prevent shifting which could loosen terminal caps or reorient the terminals to produce short circuits. Batteries contained in devices must be securely installed. Terminal protection methods include but are not limited to the following:

(i) Securely attaching covers of sufficient strength to protect the terminals;

(ii) Packaging the battery in a rigid plastic packaging; or

(iii) Constructing the battery with terminals that are recessed or otherwise protected so that the terminals will not be subjected to damage if the package is dropped.

14.1 U.S. DEPARTMENT OF TRANSPORTATION 49 CFR 172.101 (continued):

Provision 340:

This entry applies only to the vessel transportation of nickel-metal hydride batteries as cargo. Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in battery-powered devices transported by vessel are not subject to the requirements of this special provision. See "Batteries, dry sealed, n.o.s." in the § 172.101 Hazardous Materials Table (HMT) of this part for transportation requirements for nickel-metal hydride batteries transported by other modes and for nickel-metal hydride button cells or batteries packed with or contained in battery-powered devices transported by vessel. Nickel-metal hydride batteries subject to this special provision are subject only to the following requirements.

(1) The batteries must be prepared and packaged for transport in a manner to prevent a dangerous evolution of heat, short circuits, and damage to terminals, and are subject to the incident reporting in accordance with § 171.16 of this subchapter if a fire, violent rupture, explosion or dangerous evolution of heat (i.e. an amount of heat sufficient to be dangerous to packaging or personal safety to include charring of packaging, melting of packaging, scorching or packaging, or other evidence) occurs as a direct result of a nickel-metal hydride battery; and,

(2) When loaded in a cargo transport unit in a total quantity of 100 kg gross mass or more, the shipping paper requirements of Subpart C of this Part, the manifest requirements of § 176.30 of this Subchapter, and the vessel stowage requirements assigned to this entry in Column (10) of the § 172.101 Hazardous Materials Table.

14.1.1 Refer to 14.4 for classifications by shipment for this product by vessel.

14.2 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. For shipments via ground vehicle or rail that originate in Canada, the following information is applicable.

14.2.1 UN Identification Number:	UN 3496
14.2.2 Proper Shipping Name:	Batteries Nickel-Metal Hydride
14.2.3 Hazard Class Number and Description:	9 (Miscellaneous)
14.2.4 Packing Group:	None
14.2.5 Excepted Quantities:	E0
14.2.6 Hazard Label(s) Required:	Class 9 (Miscellaneous)
14.2.7 Special Provisions:	97
14.2.8 Explosive Limit and Limited Quantity Index:	None
14.2.9 ERAP Index:	None
14.2.10 Passenger Carrying Ship Index:	None
14.2.11 Passenger Carrying Road or Rail Vehicle Index:	5 kg

14.2.12 Marine Pollutant: The Nickel Dihydroxide component meets the criteria of Marine Pollutant under Transport Canada regulations, as per TDG 2.7.

14.3 INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA) per the 62nd Edition Valid Jan1, 2021 to Dec. 31, 2021: Under current IATA regulations, Nickel-metal hydride batteries are excepted from shipping as Dangerous Goods as long as all provisions under Special Provision A199 are met.

14.3.1 Special Provision A199: Under Special Provision A199 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; or, in the case of equipment, by disconnection of the battery and protection 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.

14.4 INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO) per Edition 39-DD (V14) 2018-2020: This product is classified as dangerous goods, per the International Maritime Organization.

14.4.1 UN No.:	3496
14.4.2 Proper Shipping Name:	Batteries, nickel-metal hydride
14.4.3 Hazard Class Number:	9 (Miscellaneous)
14.4.4 Hazard Label:	Class 9 (Miscellaneous)
14.4.5 Packing Group:	None
14.4.6 Special Provisions:	117, 963
14.4.7 Limited Quantities:	0
14.4.8 Excepted Quantities:	E0
14.4.9 Packing Instructions:	Instructions: See SP963; Provisions: None
14.4.10 IBC Information:	Instructions: IBC03; Provisions: None
14.4.11 Tanks:	Instructions: None; Provisions: None
14.4.12 EmS:	F-A, S-I
14.4.13 Stowage Category:	Category A, SW
14.4.14 Segregation:	None

14.4.15 Marine Pollutant: The Nickel Dihydroxide component meets the criteria of a Marine Pollutant under UN criteria or is specifically listed in the MARPOL 73/78 Annex III.

14.5 EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): Nickel-metal hydride batteries are not classified by the Economic Commission for Europe to be dangerous goods.

14.6 AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL, Edition 7.7, 2020: Not subject to this Code. Nickel-metal hydride batteries are Dangerous Goods only when transported by sea. Refer to 14.5 for classification requirements when shipped by vessel.

14. TRANSPORTATION INFORMATION (Continued)

14.7 IN BULK ACCORDING TO THE IBC CODE: Nickel-metal hydride batteries are only subject to IBC under shipments via vessel. The Code for these shipments is IBC03.

14.8 ENVIRONMENTAL HAZARDS: This product and its components do not 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);

14.9 This nickel-metal hydride battery pack 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.

14.10 This nickel-metal hydride battery pack 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

15.1 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 (IECSC)

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.

15.2 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

15.3 EUROPEAN UNION REGULATIONS:

15.3.1 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.

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

15.3.3 EU RoHS Directive 2011/65/EU: Internal circuitry of Li-ion BP is RoHS compliant.

16. OTHER INFORMATION

16.1 GLOBAL HARMONIZATION FULL TEXT FOR COMPONENTS: The following classification is for the chemical components of the electrolyte solution.

16.1.1 Nickel Dihydroxide: The following is an official published Harmonized Classification under CLP 1272/2008.

Classification: Germ Cell Mutagen Category 2, Carcinogenic Category 1A, Reproductive Toxicity Category 1B, Acute Oral Toxicity Category 4, Acute Inhalation Toxicity Category 4, Skin Irritation Category 2, 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. H302 + H332: Harmful if swallowed or in inhaled. H335: May cause respiratory irritation. H317: May cause an allergic skin reaction. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H372: May cause damage to lungs through prolonged or repeated exposure by inhalation. H410: Very toxic to aquatic life with long-lasting effects.

ADDITIONAL SELF-CLASSIFICATION

Classification: Metal Corrosion Category 1

Hazard Statements: H290: May be corrosive to metals.

16.1.2 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.

16.1.3 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.

16.1.4 All Other Components: Not applicable.

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

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

16.3 REVISION DETAILS:

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

November 2018: Review and up-date entire SDS as per current regulations, including shipping regulations, exposure limits and GHS classification.

October 2020: Review all sections for current formatting under UN GHS European Union CLP EC 1272/2008 & the 8^{h} ATP 2016/918. Addition of required headings, subheadings under Canadian WHIMIS 2015. Addition of calculated ATE toxicity values for the electrolyte solution in Sections 1 and 11. Review exposure limits in place for components of the electrolyte solution in Section 8. Review and up-date of EPA waste disposal categories. Review and up-date of all shipping classifications by all modalities.

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