

1. Identification of Substance & Company

Product

Product name	Maxlife Rechargeable NiMH Battery
Product code	to be advised
HSNO approval	exempt - manufactured article
Approval description	exempt - manufactured article
UN number	NA
Proper Shipping Name	NA
Packaging group	NA
Hazchem code	NA
Uses	Battery

Company Details

Company	P.K. Global Limited
Address	136 Motu Road RD1 Kumeu Auckland 0891 New Zealand
Telephone	0064 9 412 5136
Fax	0064 9 412 5135

Emergency Telephone Number: 0800-764 766

2. Hazard Identification

Approval

Manufactured article: Batteries are considered to be manufactured articles and are not, therefore, covered by the HSNO Act. Under normal circumstances, a battery is sealed and the substance is not expected to be released. The following classification and hazards are associated with the contents of an open battery.

Classes

Hazard Statements

6.1E (oral)	May be harmful if swallowed
8.2C	Causes severe skin burns and eye damage.
8.3A	Causes serious eye damage.
6.7B	Suspected of causing cancer.
6.8B	Suspected of damaging fertility or the unborn child
6.9B	Causes damage to organs through prolonged or repeated exposure
9.1A	Very toxic to aquatic life.
9.3C	Harmful to terrestrial vertebrates.

SYMBOLS

DANGER



Other Classifications

Swallowing an intact battery can be harmful. If intact battery is swallowed, seek medical attention immediately.

If batteries are placed in a fire, they may rupture and the contents may intensify the fire.

Precautionary Statements – these apply to the contents of an opened battery.

Keep out of reach of children.
Do not breathe dust/vapours.
Wash hands thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Obtain special instructions before handling contents.
Do not handle until all safety precautions have been read and understood.
Avoid contact during pregnancy/while nursing.
Do not eat, drink or smoke when using this product.
IF exposed or concerned: Get medical advice/ attention.
Avoid release to the environment.
Collect spillage.

Further precautionary statements can be found in Section 4 – First Aid.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Concentration
aluminium	7429-90-5	<2%
cobalt	7440-48-4	2.5-6%
lithium hydroxide	1310-65-2	0-4%
manganese	7439-96-5	<3%
nickel alloy	mixture	<13%
nickel	7440-02-0	30-50%
potassium hydroxide	1310-58-3	<7%
sodium hydroxide	1310-73-2	0-4%
zinc	7440-66-6	<3%
water	7732-18-5	balance

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

4. First Aid**General Information**

If medical advice is needed, have product container or label at hand. You should call the National Poisons Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service). IF exposed or concerned: Get medical advice/ attention.

Recommended first aid facilities Ready access to running water is required. Accessible eyewash is required.

Exposure

Swallowed IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Contact a doctor immediately.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Skin contact IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.

Inhaled Generally, inhalation of fumes from the contents of the battery is unlikely to result in adverse health effects. However, it is a possible sensitiser and so if coughing, dizziness or shortness of breath is experienced, remove the patient to fresh air immediately. If patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor.

Advice to Doctor

Treat symptomatically

5. Firefighting Measures

Fire and explosion hazards: Batteries may present a hazard if exposed to a fire. Batteries can rupture in a fire and release contents as toxic fumes or vapours. Manganese dioxide and zinc are oxidisers and can intensify a fire.

Suitable extinguishing substances: Carbon dioxide, extinguishing powder or water jet. Fight larger fires with water jet or alcohol resistant foam. Keep intact batteries cool if exposed to a fire to prevent rupture.

Unsuitable extinguishing Unknown.

substances:	
Products of combustion:	Batteries may emit toxic fumes and vapours in a fire.
Protective equipment:	Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.
Hazchem code:	NA

6. Accidental Release Measures

Containment	There is no current legal requirement for containment of this product. It is a manufactured article.
Emergency procedures for release of contents of a battery	In the event that a battery is damaged and the content is released: Wear protective equipment to prevent skin, eye and respiratory exposure. (see section 8 for details). Contain leakage using sand, earth or vermiculite. Collect and seal in properly labelled containers for disposal.
Emergency procedures (intact batteries)	In the event of spillage of a large number of batteries (>100kg) alert the fire brigade to location and give brief description of hazard. Stop the source of the leak, if safe to do so. Prevent by whatever means possible any batteries from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).
Disposal	Collect recoverable material into labelled containers for recycling or salvage. Recycle containers wherever possible. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.
Precautions	For content of open batteries: Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. For batteries: Ensure that no damage occurs to the batteries to prevent leakage of the content.

7. Storage & Handling

Storage	Store batteries in a cool, dry, well ventilation area. Keep away from heat, fire, sunlight and ignition sources. Store batteries in their packaging. Unpacked batteries may short circuit and generate heat.
Handling	Keep away from children. Handle batteries with care. Do not solder or weld onto the battery. Do not mix with used, or other battery types. If handling the contents of an open battery: Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapours/dusts.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

During normal use of a battery release of the contents of the battery does not occur.

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this contents of the battery. There is a general limit of 10mg/m³ for dusts and mists when limits have not otherwise been established.

NZ Workplace Exposure Stds (2013)	Ingredient	WES-TWA	WES-STEL
	Manganese	1mg/m ³	data unavailable
	Zinc	10mg/m ³ (dust)	data unavailable
	Aluminium	10mg/m ³ (dust)	data unavailable
	Cobalt/Co metal dust & fumes as Co (bio) 6.7B:	0.05mg/m ³	data unavailable
	Nickel: Ni metal (sen):	1mg/m ³	data unavailable
	potassium hydroxide	2mg/m ³ (ceiling)	data unavailable
	sodium hydroxide	2mg/m ³ (ceiling)	data unavailable

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety in Employment Act 1992 (HSE). Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

Eyes



If handling the contents of an open battery, Protect eyes with goggles, safety glasses or full face mask. Avoid wearing contact lenses.

Skin

If handling the contents of an open battery, avoid skin contact. Wear overalls, rubber boots and impervious gloves. Nitrile or PVC gloves are recommended. Replace frequently. Gloves should be checked for tears or holes before use. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking.

Respiratory

A respirator when airborne concentrations approach the WES (section 8). Use a respirator with a particulate filter. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order.

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	metal cylinder shell containing electrolyte solution
Odour	intact battery has no odour
pH	>14
Vapour pressure	no data
Viscosity	no data
Boiling point	no data
Volatile materials	no data
Freezing / melting point	>300°C
Solubility	partly soluble in water
Specific gravity / density	no data
Flash point	non flammable
Danger of explosion	no data
Auto-ignition temperature	no data
Upper & lower flammable limits	no data
Corrosiveness	contents of the battery is corrosive to skin and eyes.

10. Stability & Reactivity

Stability	Stable at room temperature and pressure. Stable during normal use.
Conditions to be avoided	Keep from extreme heat and open flames. Do not puncture, crush or incinerate. Prevent short circuits.
Incompatible groups	Content of the battery: oxidising agents, flammable substances. Acids.
Substance Specific Incompatibility	none known
Hazardous decomposition products	zinc oxides, manganese oxides, other metal oxides, carbon dioxide, carbon monoxide.
Hazardous reactions	none known

11. Toxicological Information**Summary**

During normal use the battery are not considered harmful/toxic.

The following summary is for the contents of the battery.

IF SWALLOWED: Can cause burning and permanent damage to the mouth and throat.

IF IN EYES: cause permanent eye damage.

IF ON SKIN: causes burns to the skin. Some individuals may experience allergic skin reactions.

IF INHALED: if vapours are inhaled, these can cause respiratory irritation. Some sensitised individuals may experience asthma type symptoms (cobalt, nickel).

CHRONIC TOXICITY: prolonged or repeated contact with the contents of the battery may cause long term toxicity due to exposure to cobalt may affect the lungs and respiratory system.

Supporting Data

Acute	Oral	Using LD ₅₀ 's for ingredients, the calculated LD ₅₀ (oral) for the mixture is between 2000 and 5,000 mg/kg. Data considered includes: lithium hydroxide : 120mg/kg (rat), potassium hydroxide: 273mg/kg (rat).
	Dermal	No evidence of dermal toxicity.
Chronic	Inhaled	Using LC ₅₀ 's for ingredients, the calculated LC ₅₀ (inhalation, rat) for the mixture is >20 mg/L (dust/mist) ppm. Data considered includes:Lithium hydroxide 0.96mg/L (rat, dust/mist): Acute exposure to zinc dust fumes can cause metal fume fever in humans.
	Eye	The mixture is considered to be corrosive to the eye, the pH of the contents is >14.
	Skin	The mixture is considered to be corrosive to the skin, the pH of the contents is >14.
	Sensitisation	Several of the metal and metal compounds present are considered respiratory and skin sensitisers, e.g. cobalt and nickel.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	Cobalt is classed 6.7B by EPA and is present >0.1%. Nickel alloy is also considered a carcinogen 6.7B.
	Reproductive / Developmental Systemic	The mixture is considered to be a reproductive or developmental toxicant, because Cobalt is a suspected reproductive effector. The mixture is considered to be a suspected target organ toxicant (6.9B), because cobalt is a known systemic toxicant (but present in <10%).
Aggravation of existing conditions	None known.	

12. Ecological Data**Summary**

An intact battery is not considered harmful to the environment. However is exposed to the elements the housing may break down and release the contents of the battery. The contents is considered ecotoxic in the aquatic environment. Do not allow contents to reach waterways.

Supporting Data – for the contents of the battery

Aquatic	Using EC ₅₀ 's for the contents of the battery: the calculated EC ₅₀ for the mixture is < 1 mg/L. Data considered includes: Zinc 0.14 mg/l (96h, <i>Oncorhynchus mykiss</i>), 0.07 mg/l (48hr, <i>Daphnia magna</i>), 0.03 mg/l (96hr, <i>Selenastrum capricornutum</i>). The pH of the mixture is >14.
Bioaccumulation	No data.
Degradability	No data
Soil	EPA has not classified any of the ingredients as ecotoxic in the soil environment.
Terrestrial vertebrate	The contents of the battery may be toxic towards terrestrial vertebrates. See acute toxicity above.
Terrestrial invertebrate	There is no evidence of toxicity towards terrestrial invertebrates.
Biocidal	no data
Environmental effect levels	No EELs are available for this mixture or ingredients

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.
Disposal method	Disposal of this product must comply with the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
Contaminated packaging	Rinse containers with water before disposal. Preferably re-cycle container, otherwise send to landfill or similar.

14. Transport Information

LAND TRANSPORT:

Not regulated for transport on land.

UN number:	NA	Proper shipping name:	NA
Class(es)	NA	Packing group:	NA
Precautions:	Ecotoxic.	Hazchem code:	NA

AIR TRANSPORT:

IATA: Not restricted to IATA DGR according to special provision A123.

MARINE TRANSPORT:

IMO: Not restricted to IMDG CODE according to special provision A304.

15. Regulatory Information

Batteries are considered to be manufactured articles and are not, therefore, covered by the HSNO Act. Although they may contain hazardous substances, the item has an end use function wholly dependent on its shape and design, which does not involve the intentional release of any hazardous component. (from EPA New Zealand)

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health, Safety in Employment Act and Regulations, local Council Rules and Regional Council Plans.

16. Other Information**Abbreviations**

Approval Code	Approval: exempt - manufactured article Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
Ceiling	Ceiling Exposure Value: The maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time.
Controls Matrix	List of default controls linking regulation numbers to Matrix code (e.g. T1, I16).
EC₅₀	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
ERMA	Environmental Risk Management Authority (now EPA)
EPA	Environmental Protection Agency (previously known as ERMA)
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
LD₅₀	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC₅₀	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
MSDS (SDS)	Material Safety Data Sheet (or Safety Data Sheet)
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UEL	Upper Explosive Limit
UN Number	United Nations Number
WES	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID) http://www.epa.govt.nz/hs/compliance/chemicals.html , for specific chemicals.
EPA Transfer Gazettes	Classifications and controls assigned for specific ingredients (consolidated gazette, 2004)
Controls Matrix	Part of the EPA New Zealand User Guide to the HSNO Control Regulations
WES 2013	The NZ Workplace Exposure Standards Effective from 2013, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz .
Other References:	Suppliers SDS

Review

Date	Reason for review
March 2015	Not applicable – new SDS (Draft)

Disclaimer

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely HSNO classifications for this SDS have been estimated based on general information from the supplier (e.g., hazard, toxicological). This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email info@datachem.co.nz or phone: +64 9 940 30 80.

