

# MSDS Report

**Samples** : NI-CD KRH23/43(SC)1600mAh 3.6V

**Client Unit:** POWERCRAFT ELECTRONICS PTE LTD

**Client Address:** 512 CHAI CHEE LANE #06-11 SINGAPORE 469028

# NI-CD RECHARGEABLE BATTERY

## MATERIAL SAFETY DATA SHEET

### Section 1 - Chemical Product and Company Identification

**Product Name:** NI-Cd KRH23/43(SC)1600mAh 3.6V

**Sample Code:** 3.6V 1600mAh

**Client Unit:** POWERCRAFT ELECTRONICS PTE LTD

**Address:** 512 CHAI CHEE LANE #06-11 SINGAPORE 469028

**Tel:** +65 6746 8272

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### Section 2 – Hazards Identification

**Health hazards:**

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte with skin and eyes should be avoided.

### Section 3 – Composition/Information on Ingredient

The 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 opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances. The following information is provided for the user's information only.

Chemical Name	CAS No.	In % by Weight
Cadmium oxide	1306-19-0	15.0 ~ 25.0
Nickel hydroxide	12054-48-7	15.0 ~ 25.0
KOH (d=1.25g/cm <sup>3</sup> )	1310-58-3	4.5 ~ 8.0
Cadmium	7440-43-9	12.0 ~ 18.0
PP (Diaphragm)	9003-07-0	1.0 ~ 3.0
Nickel	7440-02-0	10.0 ~ 18.0
CoO	1307-96-6	1.0~ 1.5
Steel	N/A	25.0 ~ 35.0
Other	N/A	≤1

## Section 4 – First-aid Measures

**Inhalation:** During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within the battery case. However, should the batteries be exposed to extreme heat or pressures causing a breach in the battery cell case, exposure to the constituents may occur. Inhalation of cobalt dusts may result in pulmonary conditions.

**Ingestion:** If the battery case is breached in the digestive tract, the electrolyte may cause localized burns.

**Skin Absorption:** No evidence of adverse effects from available data.

**Skin Contact:** Exposure to the electrolyte contained inside the battery may result in chemical burns.

Exposure to nickel may cause dermatitis in some sensitive individuals.

**Eye Contact:** Exposure to the electrolyte contained inside the battery may result in severe irritation and chemical burns.

**Other Effects of Repeated (Chronic) Exposure:** Chronic overexposure to nickel may result in cancer; dermal contact may result in dermatitis in sensitive individuals.

**Medical Conditions Aggravated by Overexposure:** knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

**Emergency and First Aid Procedures:** Swallowing: Do not induce vomiting. Seek medical attention immediately.

**Skin:** If the internal cell materials of an opened battery cell come into contact with the skin, immediately flush with water for at least 15 minutes. Inhalation: If potential for exposure to fumes or dusts occurs, remove immediately to fresh air and seek medical attention.

**Eyes:** If the contents from an opened battery come into contact with the eyes, immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.

## Section 5 – Fire-Fighting Measures

### **Extinguishing Media:**

Dry chemical, carbon dioxide, water spray/regular foam.

### Special Fire-Fighting Procedures

Self-contained breathing apparatus.

### Unusual Fire and Explosion Hazards

Cell may vent when subjected to excessive heat exposing battery contents.

### **Hazardous Combustion Products:**

Carbon monoxide, carbon dioxide, metal oxide, irritating fume and toxic gas.

## Section 6 – Accidental Release Measures

### **Procedures to contain and clean up leaks or spills:**

In the event of a battery rupture, prevent skin contact and collect all released material in a plastic lined metal container.

### **Reporting procedure:**

Report all spills in accordance with Federal, State and Local reporting requirements.

### **Waste disposal method:**

Earth or sand should be used to absorb the exudation, seal leaking battery and earth in a heavy duty polythene bag and dispose of as special waste in accordance with local regulations.

## Section 7 - Handling and Storage

The battery should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

**Precautions to be taken in handling and storing:** Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

**Other Precautions:** The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

## Section 8 - Exposure Controls, Personal Protection

### **Respiratory Protection:**

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

**Ventilation:** Not necessary under conditions of normal use.

**Protective Gloves:** Not necessary under conditions of normal use.

**Other Protective Clothing or Equipment:** Not necessary under conditions of normal use.

**Personal Protection is recommended for venting battery:** Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

## Section 9–Physical and Chemical Properties

**Appearance:** Sealed battery

**Adour:** Odorless

**Color:** N/A

**P H:** N/A

**Flash Point:** N/A unless individual components exposed.

**Flammability:** N/A unless individual components exposed.

**Solubility (Water):** N/A unless individual components exposed.

**Solubility(Other):** N/A unless individual components exposed.

## Section 10–Stability and Reactivity

**Stability**

Stable

**Conditions to Avoid**

Heating, mechanical abuse and electrical abuse

**Hazardous Decomposition Products**

Carbon monoxide, carbon dioxide, metal oxide, irritating fume and toxic gas.

**Hazardous polymerization**

N/A

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

## Section 11– Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened.

## Section 12–Ecological Information

**Mobility:** None known if used/disposed of correctly.

**Persistence and degradability:** None known if used/disposed of correctly.

**Ecotoxicity effects:** None known if used/disposed of correctly.

## Section 13–Disposal Considerations

**Waste from residues/unused products:** The battery is a hazardous waste under PCRA. Dispose of in accordance with appropriate local regulations. Should not release into the environment.

**Contaminated packaging:** Not applicable.

## Section 14 - Transport Information

### Transported by air:

Not classified as dangerous goods in the meaning of air transport regulations.

Regulatory body	Special Provision
IATA(64 <sup>th</sup> Edition-2023)	A123

International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA), Special Provision A123 state: An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is non prepared so as to prevent 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) is forbidden from transportation.

POWERCRAFT sealed nickel cadmium batteries are not subject to these regulations and special provision as their terminals are protected from short-circuit when packaged for transport.

### Transported by sea:

Not a hazard material or hazard goods for transportation.

Separate Nickel-Cadmium batteries when shipping to prevent short-circuiting.

They should be packed in strong packaging for support during transport.

Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell.

## Section 15 - Regulatory Information

### Law Information

《Dangerous Goods Regulation》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods》

OSHA Hazard Communication Standard Status

Toxic Substances Control Act(TSCA) Status

California Proposition 65

European/International Regulations

In accordance with all Federal, State and Local laws.

## Section 16 - Other Information

The date in this MSDS relates only to the specific material designed herein.