

## Product Information Data Sheet

Nickel Cadmium battery is not a target product for SDS(safety data sheet).

This sheet is intended to be issued in order to provide "reference information" to ensure the safe handling of the product.

### 1. Chemical Product and Company Identification

Product name : Sealed Nickel Cadmium Battery.  
 Information on company  
 Company name : THE FURUKAWA BATTERY CO.,LTD.  
 Department in charge : Environmental promotion  
 Address : No.2-4-1 HOSHIKAWA, HODOGAYA-KU, YOKOHAMA, KANAGAWA, JAPAN  
 Phone number : 81-45-336-5055  
 Fax number : 81-45-333-2534

### 2. Hazards Identification

GHS Classification  
 Hazard class :Not applicable  
 Health Hazards :Not applicable  
 Environmental Hazards :Not applicable  
 GHS label elements  
 Symbol :None  
 Signal word :None  
 Hazard statements :None  
 Precautionary statements :None  
 Other risks :No information

### 3. Composition/Information on Ingredients

Chemical name or common name	Component part	Content rate (mass ratio)	Chemical formula	CAS no.
Nickel and compounds	Plate	10-40	Ni	7440-02-0
Cadmium and compounds	Plate	10-35	Cd	7440-43-9
Cobalt and compounds	Plate	0-3	Co	7440-48-4
Iron	Container	20-50	Fe	7439-89-6-
Carbon Black	Label	0-1	C	1333-86-4
Potassium Hydroxide	Electrolyte	0-5	KOH	1310-58-3
Sodium Hydroxide			NaOH	1310-73-2
Hydroxide Lithium			LiOH	1310-65-2

### 4. First-aid Measures

If inhaled : (Cadmium, Potassium Hydroxide, Sodium Hydroxide, Hydroxide Lithium)  
 Remove person to fresh air, keep comfortable for breathing.  
 Get medical advice/attention.  
 (Nickel, Cobalt)  
 If difficulty breathing, move to a place with fresh air and rest in a comfortable posture.  
 Contact doctor if you experience respiratory symptoms.

If on skin : (Nickel, Cobalt)  
 Wash skin with plenty of water and soap.  
 If skin irritation occurs, get medical advice/attention.  
 Take off all contaminated clothing and wash it when reusing.  
 (Potassium Hydroxide, Sodium Hydroxide, Hydroxide Lithium)  
 Take off or remove immediately all contaminated clothing.  
 Rinse skin with water or shower.  
 If skin irritation or chemical injury occurs, get medical advice/attention.

If in eyes	: (Potassium Hydroxide, Sodium Hydroxide, Hydroxide Lithium) Open the eyelids with your fingers, rinse thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention/advice.
If swallowed	: (Cadmium) Contact doctor if you feel unwell. Rinse mouth. (Sodium Hydroxide, Potassium Hydroxide, Hydroxide Lithium) Immediately call a doctor. Rinse mouth. Do not induce vomiting. Get medical advice/attention.
Most important symptoms/effects, acute and delayed	: (Cadmium) Cough, headache, chest pain, dyspnea, fever, dizzy, bronchitis, pulmonary edema, dermatitis, redness, abdominal pain, diarrhea, nausea, vomiting. (Potassium Hydroxide, Sodium Hydroxide, Hydroxide Lithium) Corrosive, burning sensation, sore throat, cough, breathlessness, shortness of breath, redness, pain, blisters, blurred vision, severe skin burns, severe burns, abdominal pain, headache, nausea, shock or collapse, vomiting, weakness.
Protection for first-aiders	: Rescuers wear protective equipment such as rubber gloves and tight-fitting safety goggles.
Special note to physician	: (Cadmium, Sodium Hydroxide, Hydroxide Lithium) Symptoms of lung edema often do not show until a few hours have passed, and it might aggravate if it does not take a rest. Therefore, it is necessary to take a rest and medical observation.

---

## 5. Fire Fighting Measures

Specific risk/hazard	: In case of fire, there is a possibility that irritative, corrosive or toxic fumes or gases are generated. There is a possibility of explosion of the product by heat.
Specific fire fighting method	: Cut off the power in case of connection/energizing the product into the device, if can be coped with safely. Move the product from the fire area if it is not dangerous. After extinguishing the fire, continue to cool the container thoroughly with plenty of water. Immediately move the movable product to safe place when fire occurs in surrounding. If it is not movable, cool the product with water spray. Keep away the combustible materials to prevent spread fire around.
Protection for fire-fighters	: Extinguish fire from upwind. Wear appropriate protective clothes for chemical (self-contained breathing apparatus, protective glasses, etc.) to fire fighting.

---

## 6. Accidental Release Measures

Personal precautions, protective equipment and emergency measures	: Wear appropriate protective equipment (gloves, protective glasses, protective clothing and the like), when processing the leakage. Do not touch or walk through the leakage. Do not breathe dust, mist and vapour.
Precautions for the environment	: Be careful to not discharge the product into the rivers, sewer, and soil.
Method for containment and clean-up	: Collect in an empty container that can be sealed. Collected material should be disposed in compliance with '13. Disposal Considerations'.
Prevention of secondary hazards	: Immediately remove all ignition sources in the vicinity. Prepare fire extinguishing equipment just in case it is ignited.

## 7. Handling and Storage

Handling	
Technical measures	: Take measure described in '8: Exposure Controls and Personal Protective Equipment', and wear appropriate protective equipment.
Local exhaust/general ventilation	: Work in a well-ventilated place and provide local exhaust or general ventilation as necessary.
Cautions for Safety Handling	: Do not use fire near the product. Do not dismantle or modify the product. Do not do short-circuit between the terminals. Handling and charging of the product should be in well ventilated place. Prevent falling and overturning of container. Careful to not give a shock. Try to not damage the product. Do not eat, drink or smoke when using this product.
Storage	
Safe Storage condition	: Provide a ventilation and lighting required for storing and handling hazardous materials in the storage location. : Do not store near the fire. Do not store in place where is exposed to high temperature, high humidity, rain, direct sunlight. Store in place where is no risk of fire, toxic gas, liquid droplets, generating or invasion of dust, and submerged.
Packing material	: Use a sealed container without damage or leakage.

---

## 8. Exposure Controls and Personal Protective Equipment

Controlled exposure level	: Nickel (plate) (as Nickel) : 0.1mg/ m <sup>3</sup> Cadmium (plate) (as Cadmium) : 0.05 mg/m <sup>3</sup> Cobalt (plate) Cobalt and compounds (as cobalt): 0.02 mg/m <sup>3</sup>
ACGIH (2022)	: Nickel (plate) Nickel: TLV-TWA 1.5mg/ m <sup>3</sup> Cadmium (plate) (as Cadmium): TLV-TWA=0.002 mg/ m <sup>3</sup> Cobalt (plate) (as Cobalt and compounds): TLV-TWA=0.02 mg/ m <sup>3</sup> Carbon black (label) (as Carbon black): TLV-TWA=3mg/m <sup>3</sup> Sodium Hydroxide(Electrolyte) TLV-Celling =2.0mg/m <sup>3</sup>
Engineering controls	: Provide hand wash and eyes wash facilities and safety shower near the handling place as necessary.
Personal protective equipment	
Respiratory protection	: Wear respiratory protective equipment as necessary.
Hand protection	: Wear impermeable protective gloves.
Eye protection	: Wear protective glasses, goggle type safety glasses and the like.
Skin and body protection	: Wear protective clothing, protective apron and the like as necessary.
Hygiene measures	: Do not eat, drink or smoke when handling. Wash hands thoroughly after handling. Protective equipment shall be inspected regularly according to the protective equipment checklist.

## 9. Physical and Chemical properties

Describes the information about the components below.

	Nickel	Cadmium	Cobalt	Potassium Hydroxide	Sodium Hydroxide	Hydroxide Lithium
Physical state	Solid	Solid	Solid	Liquid	Liquid	Liquid
Colour,	No information	Silver white	Silver white	Colourless	Colourless	Colourless
Odour	No information	No information	Odorless	Odorless	Odourless (normal temperature)	Odorless
Melting point	1453°C	321°C	1,493°C	Approx.8°C	No information	No information
Boiling point, initial boiling point and boiling range	2730°C	765°C	2,870°C	138°C	140°C	No information
Flammability (solid, gas)	No information	No information	No information	Non flammable	Non flammable	No information
Lower and upper explosion limit / flammability limit	No information	No information	Not applicable	No information	No information	No information
Flash point	No information	Not applicable	Not applicable	Non flammable	No information	No information
Auto-ignition temperature	No information	No information	Not applicable	Non flammable	No information	No information
Decomposition temperature	No information	No information	No information	No information	No information	No information
pH	No information	No information	No information	14(1mol/L, 25°C)	13.5≤	12≤
Kinematic viscosity	No information	No information	Not applicable	No information	No information	No information
Solubility	4.22E+005 mg/L:SRC	Water: Insoluble	Water: 0.00029 g /100 cc	Miscible in water.	Miscible in water. Soluble in alcohol.	Miscible in Water and alcohol.
Partition coefficient ; n-octanol/water(log value)	-0.57 (EST) : SRC	log Pow = -0.07 (Estimated value)	Not applicable	No information	No information	No information
Vapour pressure	1mmHg (1,810°C)	5.52×10 <sup>-7</sup> Pa (25°C,Estimated value)	1Pa(1,517°C)	0.43hPa (20°C)	0.41 kPa (20°C)	No information
Density and/or relative density	8.908g/cm <sup>3</sup> : Merck	No information	8.9 g/cm <sup>3</sup>	No information	1.4791 (20/4°C)	No information
Relative vapour density	No information	No information	Not applicable	No information	No information	No information
Particle characteristics	No information	No information	No information	No information	No information	No information

## 10. Stability and Reactivity

Conditions to avoid : High temperature.  
 Incompatible materials : (Cadmium, Potassium Hydroxide, Sodium Hydroxide, Hydroxide Lithium) : Oxidizing agent.  
 Hazardous decomposition products : In case, there is a possibility that irritative or toxic gases or fumes are generated.

## 11. Toxicological Information

Indicate the information for each of components of nickel cadmium battery as below.

	Nickel	Cadmium	Cobalt	Potassium Hydroxide	Sodium Hydroxide	Hydroxide Lithium
Acute toxicity (Oral)	—	Category4	Category4	—	Category4	—
Acute toxicity (Dermal)	—	—	—	—	—	—
Acute toxicity (Inhalation: Gases)	—	—	—	—	—	—
Acute toxicity (Inhalation: Vapours)	—	—	—	—	—	—
Acute toxicity (Inhalation: Dust and Mists)	—	Category1	Category1	—	—	Category 3
Skin corrosion/irritation	—	—	—	Category1	Category1B	Category1
Serious eye damage/eye irritation	—	—	Category2B	Category1	Category1	Category1
Respiratory sensitization	Category1	—	Category1A	—	—	—
Skin sensitization	Category1	—	Category1A	—	—	—
Germ cell mutagenicity	—	Category2	—	—	—	—
Carcinogenicity	Category2	Category1A	Category2	—	—	—
Reproductive toxicity	—	Category2	Category1B	—	—	Category1A
Specific target organ toxicity (single exposure)	Category1 (respiratory organs, kidney)	Category1 (lung, respiratory organs)	Category1 (respiratory organs)	Category1 (respiratory organs)	Category1 (respiratory organs)	Category1 (respiratory tract)
Specific target organ toxicity (repeated exposure)	Category1 (respiratory organs)	Category1 (kidney, lung, blood, bone, respiratory organs)	Category1 (respiratory organs, heart, thyroid, blood system, reproductive organs (male))	—	Category1 (respiratory organs)	—
Aspiration hazard	—	—	—	—	Category1	—

※ “—” in the table means “not applicable” or “Classification not possible” or “Not classified” currently.

## 12. Ecological Information

Indicate the information for each of components of nickel cadmium battery as below.

	Nickel	Cadmium	Cobalt	Potassium Hydroxide	Sodium Hydroxide	Hydroxide Lithium
Hazardous to the aquatic environment (acute)	—	Category1	Category1	Category3	—	—
Hazardous to aquatic environment (chronic)	—	Category1	Category1	—	—	—

※ “—” in the table means “not applicable” or “Classification not possible” or “Not classified” currently.

## 13. Precautions for Disposal

Disposal considerations : In the disposal, follow the relevant laws and regulations and the standards of the local government.  
Entrust disposal to industrial waste disposal contractor who has received the permission of prefectural governor, or if the local government is performing waste disposal, entrust them disposal.

## 14. Transport Information

International regulations(dangerous goods)

Inland transport : Follow the regulation under ADR/RID.  
Sea transport : Follow the regulation under IMO.  
Air transport : Follow the regulation under ICAO/IATA.  
UN number : No applicable.  
UN class : -  
Proper shipping name : -  
Packing group : -  
Special requirements : IATA A123

Sealed Nickel Cadmium batteries are considered to be "dry cell" batteries and are not subjected to dangerous goods regulation for the purpose of transportation by The U.S. Department of Transportation (DOT), The International Civil Aviation Administration (ICAO), The International Air Transport Association (IATA) or The International Maritime Dangerous Good regulations (IMDG).

International air transport is not restricted provided that, as stated in IATA special provision A123, batteries and battery powered devices/equipments being transported by air are protected from short-circuiting.

The IATA / ICAO regulations require the words "Not Restricted" and "Special ProvisionA123" to appear on the air waybill, when an air waybill is used.

Marine pollutant : Not applicable

## 15. Regulatory Information

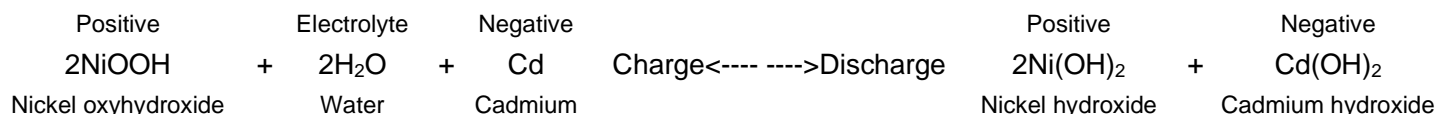
TSCA (Toxic Substances Control Act)

Each component parts of battery is listed in the TSCA Registry as follows.

Components	Chemical Formula	TSCA Status
Cadmium and compounds	Cd	Listed
Nickel and compounds	Ni	Listed
Cobalt and compounds	Co	Listed
Potassium Hydroxide Sodium Hydroxide Hydroxide Lithium	KOH NaOH LiOH	Listed

## 16. Other Information

Electrochemical reaction formula:



Reference:

Globally Harmonized System of classification and labeling of chemicals, (6th ed., 2015), UN  
JIS Z 7253:2019

- 1) NITE GHS classification data.
- 2) ECHA Home page (<http://echa.europa.eu/information-on-chemicals>)
- 3) NITE CHRIP ([http://www.safe.nite.go.jp/japan/sougou/view/SystemTop\\_jp.faces](http://www.safe.nite.go.jp/japan/sougou/view/SystemTop_jp.faces))

Notice:

The contents described in this SDS are prepared based on the data and information currently available to us. However, it does not intend to be any guarantees in regard to content, physical and chemical properties, hazards, etc.

Please handle this product in the responsibility of the user after referring to this SDS.

In addition, the precautions are intended for normal handling. Please use under implementing safety measures that are suitable for application/usage if you want to special handling.