

Instructions and correlating documents prior to air travel

Eng

2022/02/25

Once your plane trip has been determined, inform your airline company, that you will be using an electric wheelchair, and follow their instructions. At this time, provide the airline company with details of your wheelchair. In particular, see the specifications for the battery you are using below.

Nickel metal hydride battery (shown as "Ni-MH" on the lable)

Model	JWB2
Voltage	24 V
Capacity	6,7 Ah (160,8 Wh)
Type	Dry cell with built-in microcomputer

Lithium ion battery (shown as "Li-ion" on the lable)

Model	ESB 1
Voltage	25 V
Capacity	11,8 Ah (295 Wh)
Type	Dry cell with built-in microcomputer



About the lithium ion battery

There may be restrictions in regards to carrying the lithium ion battery on-board, or checking in as baggage. Be sure to consult the airline company in advance.



Print-out

Make sure to print al the following documents and keep handy att all times at the airport.

SELF-DECLARATION of CONFORMITY to IATA DANGEROUS GOODS REGULATIONS

Products	UN/ID No.	Proper Shipping Name	Special provisions		Comment
			UN	IATA	
YAMAHA Nickel-Metal Hydride Battery (JWB2)	UN3496	Batteries, Nickel-Metal Hydride	SP117	A199	JWB2 is classified UN and IATA dangerous goods and must be transported in accordance with special provisions on the left.

Special Provisions	SP117	<u>Subject to these Regulations only when transported by sea.</u>
	A199 (IATA DGR 63th edition)	<u>The UN number UN 3496 is only applicable in sea transport.</u> 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.

Verdict and Instructions	YAMAHA Nickel Metal Hydride Battery (JWB2) is applicable to the above Special Provisions. Therefore, the battery is not restricted in air transport and transportable by aircraft.
	Follow the instructions below to prevent a short circuit and unintentional activation: The battery must be removed from the vehicle. The battery must be protected from short circuit by insulating the terminals (e.g. by protective cap). The removed battery must be protected from damage for example by placing each battery in a protective pouch. Final instructions are subject to airline companies with reference to this document.

Date	2022/2/11
Company Name	Yamaha Motor Co., Ltd. Smart Power Vehicle Business Unit, JW Wheelchairs Division
Name	Michiyo Yamazaki
	山崎 美智子

YJ2022NE-J,O

Safety data sheet for chemical products (SDS)**1.PRODUCT AND COMPANY IDENTIFICATION**

- Product name : Nickel-Metal Hydride Battery
- Supplier's Name : FDK CORPORATION
- Supplier's Address : Shibaura Crystal Shinagawa, 1-6-41 Konan, Minato-ku, Tokyo
108-8212 JAPAN
- Telephone number : +81-3-5715-7400
- Manufacturer's Name : FDK CORPORATION TAKASAKI-PLANT
- Manufacturer's Address : 307-2 Koyagi-machi, Takasaki City, Gunma 370-0071, Japan
- Telephone number : +81-27-361-7575

2.HAZARDS IDENTIFICATION

- Most important hazard and effects

For the battery cell, chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage.

However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by misuse, the gas release vent will be operated. The battery cell case will be breached at the extreme. Hazardous materials may be released.

Moreover, if heated strongly by the surrounding fire, acrid or harmful fume may be emitted.

Human health effects:

Inhalation: The electrolyte inhalation affects the respiratory tract membrane and the lungs. Fume may cause a cough, chest pain and dyspnea. Bronchitis and pneumonia may occur. Possibly could be carcinogen.

Skin contact: The electrolyte skin contact affects the skin seriously and may cause dermatitis.

Eye contact: The electrolyte leaked from the battery cell is strong alkali. When it goes into an eye, the cornea may be affected and it may lead to blindness.

Ingestion: The electrolyte ingestion irritates the mouth and the throat seriously results in vomiting, nausea, hematemesis, stomach pains and diarrhea.

Environmental effects:

Since a battery cell remains in the environment, do not throw out it into the environment.

- Specific hazards :

As previously described.

3.COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation : Preparation
- Information about the chemical nature of product :

Common chemical name / General name	CAS number	Concentration / Concentration range	Classification and hazard labeling
Hydrogen Absorbing Alloy	7440-02-0(Ni) 7440-48-4(Co) 7439-96-5(Mn) 7429-90-5(Al)	20-40%	specific hazard
Nickel-Cobalt-Zinc oxide	7440-02-0(Ni) 7440-48-4(Co) 7440-66-6(Zn)	15-25%	acute toxicity specific hazard
Nickel	7440-02-0	5-15%	specific hazard
Iron	7439-89-6	20-40%	
Carbon Black	1333-86-4	0-1%	specific hazard
Potassium Hydroxide	1310-58-3	0-15%	acute toxicity corrosivity irritant property
Sodium Hydroxide	1310-73-2		
Lithium Hydroxide	1310-65-2		

4.FIRST-AID MEASURES

Internal cell materials of an opened battery cell

- Inhalation :
Cover the victim in a blanket, move to the place of fresh air and keep quiet. Seek medical attention immediately. When dyspnea (breathing difficulty) or asphyxia (breath-hold), give artificial respiration immediately.
- Skin contact :
Remove contaminated clothes and shoes immediately. Wash the adherence or contact region with soap and plenty of water. Seek medical attention immediately.
- Eye contact :
Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and internal cell materials of an opened battery cell

- Ingestion :
Do not induce vomiting. Seek medical attention immediately.

5.FIRE-FIGHTING MEASURE

Although a battery cell is not flammability, in case of fire, move it to the safe place quickly. The following measures are taken when it cannot be moved.

- Suitable extinguishing media: Dry sand, chemical powder fire extinguishing medium.
- Specific hazards: Acrid or harmful fume is emitted during fire.
- Special protective equipment for firefighters : Protective equipment written in Section 8.

6.ACCIDENTAL RELEASE MEASURES

Internal cell materials, such as electrolyte leaked from battery cell, are carefully dealt with according to the followings.

- Personal precautions :
Forbid unauthorized person to enter. Remove leaked materials with protective equipment written in Section 8.
- Environmental precautions: Do not throw out into the environment.
- Method of recovery and neutralization :
Dilute the leaked electrolyte with water and neutralize with diluted sulfuric acid. The leaked solid is moved to a container. The leaked place is fully flushed with water.

7.HANDLING AND STORAGE

- Handling
Technical measures
Prevention of user exposure: Not necessary under normal use.
Prevention of fire and explosion: Not necessary under normal use.
Precaution for safe handling: Do not damage or remove the external tube.
Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by FDK.
- Storage
Technical measures
Storage conditions (suitable to be avoided): Avoid direct sunlight, high temperature, high humidity.
Store in cool place (temperature: -20 ~ 30 degree C, humidity: from 40 to 80%).
Incompatible products: Water, seawater, metal products such as wire, necklace, hairpin
Packing material (recommended, not suitable): Insulative and tear-proof materials are recommended.

8.EXPOSURE CONTROLS / PERSONAL PROTECTION

• Engineering measures :

No engineering measure is necessary during normal use. In case of internal cell materials' leakage, the information below will be useful.

• Control parameters

Common chemical name / General name	ACGIH(2011)	
	TLV-TWA	BEI
Nickel, Nickel Compounds	(As Ni) Metal : 1.5mg/m ³ Soluble compounds : 0.1mg/m ³ Insoluble compounds : 0.2mg/m ³	-
Cobalt Compounds	(As Co) 0.02mg/m ³	In urine : 15 micro g/l In blood : 1 micro g/l
Manganese Compounds	(As Mn) 0.2mg/m ³	-
Aluminum Compounds	(As Al) 1mg/m ³ (Flammable powder)	-
Zinc oxide	2mg/m ³	-
Carbon Black	3mg/m ³	-
Potassium Hydroxide	-	-
Sodium Hydroxide	-	-
Lithium Hydroxide	-	-

ACGIH: American Conference of Governmental Industrial Hygienists, Inc.

TLV-TWA: Threshold Limit Value-time weighted average concentration

BEI: Biological Exposure Indices

• Personal protective equipment

Respiratory protection: Protective mask

Hand protection: Protective gloves

Eye protection: Protective glasses designed to protect against liquid splashes

Skin and body protection: Working clothes with long sleeve and long trousers

9.PHYSICAL AND CHEMICAL PROPERTIES

• Appearance

Physical state: Solid

Form: Cylindrical and Prismatic

Color: Metallic color (without tube/label)

Odour: No odour

• pH : NA

• Specific temperatures/temperature ranges at which changes in physical state occur :

There is no useful information for the product as a mixture.

• Flash point : NA

• Explosion properties : NA

• Density : around 1.5 ~ 6.0g/cm³

• Solubility ,with indication of the solvent(s) : Insoluble in water

10.STABILITY AND REACTIVITY

• Stability : Stable under normal use

• Hazardous reactions occurring under specific conditions

By misuse of a battery cell or the like, oxygen or hydrogen accumulates in the cell and the internal pressure rises. These gases may be emitted through the gas release vent. When fire is near, these gases may take fire.

When a battery cell is heated strongly by the surrounding fire, acid or harmful fume may be emitted.

• Conditions to avoid : Direct sunlight, high temperature and high humidity

• Materials to avoid : Conductive materials, water, seawater, strong oxidizers and strong acids

• Hazardous decomposition products: Acid or harmful fume is emitted during fire.

11. TOXICOLOGICAL INFORMATION

There is no data available on the product itself. The information of the internal cell materials is as follows.

Nickel, Nickel Compounds

- Acute toxicity:
 - oral GHS: out of Category.
 - skin Unknown.
 - inhalation (gas) GHS: exempt from a classification.
 - inhalation (steam) Unknown.
 - inhalation (mist) Unknown.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: Category 1
The allergy, asthma or breathing difficulties might be caused when inhaling.
 - Skin sensitization: GHS: Category 1
The allergic skin reaction might be caused.
- Germline mutagenicity:
 - GHS: It is not possible to classify it due to data deficiency.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: (Metal) A5 – Not suspected as a human carcinogen
 - ACGIH: (water-soluble compounds) A4 – Not classified as a human carcinogen obviously
 - ACGIH: (Insoluble compounds) A1 – Confirmed human carcinogen
 - NIOSH: Potential occupational carcinogen
 - NTP: Reasonably anticipated to be human carcinogen
 - IARC: (Metal) Group 2B Possibly carcinogenic to human
 - IARC: (Compounds) Group 1 carcinogenic to human
- Reproduction Toxicity :
 - GHS: It is not possible to classify it due to data deficiency.
- Certain target organ/ Systemic toxicity (single exposure):
 - GHS: Category 1(respiratory organ and kidney).
 - The disorder of the respiratory organ and the kidney is caused.
- Certain target organ/ Systemic toxicity (repeated exposure):
 - GHS: Category 1(respiratory organ).
 - The disorder of the respiratory organ is caused by long-term or repeated exposure.

Cobalt Compounds

- Acute toxicity:
 - oral GHS: out of Category.
 - skin Unknown.
 - inhalation (gas) GHS: exempt from a classification.
 - inhalation (steam) Unknown.
 - inhalation (mist) GHS: It is not possible to classify it due to data deficiency.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: Category 1
The allergy, asthma or breathing difficulties might be caused when inhaling.
 - Skin sensitization: GHS: Category 1
The allergic skin reaction might be caused.
- Germline mutagenicity: Unknown.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: A3 –Confirmed animal carcinogen but relevance to human carcinogen is unknown.
 - IARC: Group 2B Possibly carcinogenic to human.
 - The cancer might be caused.
- Reproduction Toxicity :
 - GHS: Category 2.
 - The adverse effect on reproductive competence or the fetus might occur.
- Certain target organ/ Systemic toxicity (single exposure):
 - GHS: Category 3(respiratory tract irritating properties).

The respiratory organ might be stimulated.

- Certain target organ/ Systemic toxicity (repeated exposure):

GHS: Category 1(respiratory organ).

The disorder of the respiratory organ is caused by long-term or repeated exposure.

Manganese compounds

- Acute toxicity:

oral GHS: out of Category.

skin Unknown.

inhalation (gas) GHS: exempt from a classification.

inhalation (steam, mist) Unknown.

- Skin corrosivity : GHS: Category 3. Slight skin stimulation.

- Serious damage and irritant property for eyes: GHS: Category 2B. eye stimulation.

- Respiratory or skin sensitization:

Respiratory sensitization: Unknown.

Skin sensitization: Unknown.

- Germline mutagenicity : GHS: It is not possible to classify.

- Carcinogenicity : GHS: out of Category.

- Reproduction Toxicity : GHS: Category 1B.

The adverse effect on reproductive competence or the fetus might occur.

- Certain target organ/ Systemic toxicity (single exposure):

GHS: Category 1(respiratory organ).

The disorder of the respiratory organ is caused.

- Certain target organ/ Systemic toxicity (repeated exposure):

GHS: Category 1(respiratory organ, nerve).

The disorder of the respiratory organ and nerve system is caused by long-term or repeated inhalation exposure.

Aluminum Compounds

- Acute toxicity:

oral, skin, inhalation(steam, dust) Unknown.

- Skin corrosivity : Unknown.

- Serious damage and irritant property for eyes: Unknown.

- Respiratory or skin sensitization:

Respiratory sensitization: Unknown.

Skin sensitization: Unknown.

- Germline mutagenicity : Unknown.

- Carcinogenicity : Unknown.

- Reproduction Toxicity : Unknown.

- Certain target organ/ Systemic toxicity (single exposure): Unknown.

- Certain target organ/ Systemic toxicity (repeated exposure):

GHS: Category 1 and 2.

The disorder of the pulmonary is caused by long-term or repeated inhalation exposure.(Category 1)

The disorder of the nerve system by long-term or repeated oral exposure might be caused.
(Category 2)

Zinc oxide

- Acute toxicity:

oral rat LD₅₀ > 5000mg/kg

inhalation (dust, mist) rat LC₅₀ > 5.7mg/l The harmful might be caused when inhaling.

- Skin corrosivity : GHS: out of Category.

- Serious damage and irritant property for eyes: GHS: out of Category

- Respiratory or skin sensitization:

Respiratory sensitization: Unknown.

Skin sensitization: GHS: out of Category.

- Germline mutagenicity : Unknown.

- Carcinogenicity : GHS: out of Category.

- Reproduction Toxicity : GHS: out of Category.

- Certain target organ/ Systemic toxicity (single exposure):

GHS: Category 1.

The disorder of the whole body

- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: Category 1.
The disorder of the pulmonary is caused by long-term or repeated inhalation exposure.

Carbon Black

- Acute toxicity:
 - oral rat LD₅₀ >15400 mg/kg
 - skin Unknown.
 - inhalation (dust) Unknown.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: Unknown.
 - Skin sensitization: Unknown.
- Germline mutagenicity : Unknown.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: A3 –Confirmed animal carcinogen but relevance to human carcinogen is unknown.
 - IARC: Group 2B Possibly carcinogenic to human.
 - The cancer might be caused.
- Reproduction Toxicity : Unknown.
- Certain target organ/ Systemic toxicity (single exposure): Unknown.
- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: Category 1
The disorder of the pulmonary is caused by long-term or repeated inhalation exposure.

Potassium Hydroxide

- Acute toxicity:
 - oral GHS: Category 3. Harmful if swallowed.
 - skin GHS: It is not possible to classify.
 - inhalation (steam) GHS: It is not possible to classify.
 - inhalation (dust) GHS: It is not possible to classify.
- Skin corrosivity : GHS: Category 1B.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: out of Category.
- Germline mutagenicity : GHS: out of Category.
- Carcinogenicity : GHS: It is not possible to classify.
- Reproduction Toxicity : GHS: It is not possible to classify.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1.
The disorder of the respiratory system is caused.
- Certain target organ/ Systemic toxicity (repeated exposure)
GHS: It is not possible to classify.

Sodium Hydroxide

- Acute toxicity:
 - oral GHS: It is not possible to classify.
 - skin GHS: It is not possible to classify.
 - inhalation (gas) GHS: out of Category.
 - inhalation (steam) Unknown.
 - inhalation (dust) Unknown.
- Skin corrosivity : GHS: Category 1.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1. Serious damage of eyes is caused.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: out of Category.
- Germline mutagenicity : GHS: out of Category

- Carcinogenicity : GHS: It is not possible to classify.
- Reproduction Toxicity : GHS: It is not possible to classify.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1(respiratory system).
The disorder of the respiratory organ is caused.
- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: It is not possible to classify.

Lithium Hydroxide

- Acute toxicity:
 - oral GHS: Category 3. Harmful if swallowed.
 - skin Unknown.
 - inhalation (steam) Unknown.
 - inhalation (dust) GHS: Category 3. Harmful if inhaled.
- Skin corrosivity : GHS: Category 1.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: It is not possible to classify.
- Germline mutagenicity : Unknown.
- Carcinogenicity : Unknown.
- Reproduction Toxicity : Unknown.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1.
The disorder of the respiratory system is caused by inhalation exposure.
- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: Category 1&2.
The disorder of the respiratory system is caused by long-term or repeated inhalation exposure.
The disorder of the liver and the hematopoietic system by long-term or repeated oral exposure might be caused.

12.ECOLOGICAL INFORMATION

- Persistence/degradability :
Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

13.DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal :
Product (waste from residues)
Do not throw out a used battery cell. Recycle it through the recycling company.
- Contaminated packaging
Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates them, dispose them as industrial wastes subject to special control.

14.TRANSPORT INFORMATION

This battery does not require the following items.

- TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR(ICAO)
- IATA Dangerous Goods Regulations – 63rd Edition Effective 1st January 2022 (IATA)
- code of federal regulations (U.S.DOT)

This battery requires the following items.

- INTERNATIONAL MARITIME DANGEROUS GOODS CODE – 2018 Edition (IMO)

Nickel-Metal Hydride Batteries is classed as Dangerous Goods, Class 9 in accordance with United Nations Recommendations on the Transport of Dangerous Goods and will have the following UN Number:

UN No.	Proper Shipping Name	Class or division	Packing group	Special provisions
3496	BATTERIES, NICKEL-METAL HYDRIDE	9	-	117 963

Instructions and contents of Special Provisions (117 and 963) for this UN number include:

- Specifying it is only regulated when transported by sea,
- Ni-MH button cells are not subject to the provisions of this code.
- Ni-MH cells or batteries packed with or contained in equipment are not subject to the provisions of this code.
- All other Ni-MH cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provisions of this code provided they are loaded in a cargo transport unit in a total quantity of less than 100 Kg gross mass.

A maritime cargo transport unit (container) falls under Class 9 Dangerous Goods when its contents are equal to or greater than 100kg in total mass.

However, the labelling, marking, or display of this information is not required.

Prior to transportation, confirmation that there is no leakage and no spillage from a container is necessary. Cargo must be handled without falling, dropping or breakage. Care must be taken to prevent the collapse of cargo piles or saturation by rain. Containers must be handled carefully. Packaging is constructed to prevent short-circuiting and/or electric shock. The product is handled as Non-Dangerous Goods by based on IATA(Special Provision A199) for air shipment.

Notes

Our Ni-MH batteries and the packages we ship are not covered by the following transportation test report and packaging requirements which are related to other chemistry batteries.

UN / Recommendations on the transport of dangerous goods

- Subsection 38.3, Part III, UN Manual of Test and Criteria
- 4G packaging and marking

Regulation for air transportation in the USA

- Parts 171, 172, 173 and 175 of 49CFR (Code of Federal Regulations, Title 49)

15. REGULATORY INFORMATION

- Regulations specifically applicable to the product :
Wastes Management and Public Cleaning Law (Japan)
Law for Promotion Effective Utilization of Resources (Japan)
Commission Directive 2006/66/EC (EU)

16. OTHER INFORMATION

- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

• Reference

Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs):

International Occupational Safety and Health Information Center (CIS)

2011 TLVs and BEIs : American Conference of Governmental Industrial Hygienists (ACGIH)

NIOSH CARCINOGEN LIST: National Institute for Occupational Safety and Health (NIOSH)

The Ninth Report on Carcinogen: National Toxicology Program (NTP)

IARC Monographs Program on the Evaluation of Carcinogenic Risks to Humans:

International Agency for Research on Cancer (IARC)

Globally Harmonized System of Classification and Labelling of Chemicals(GHS)

National Institute of Technology and Evaluation(NITE)

First edition Dec. 1, 2003

Latest edition Jan. 1, 2022

Prepared and approved by

- FDK CORPORATION TAKASAKI-PLANT
Engineering Department

Instructions and correlating documents prior to air travel

Eng

2022/02/25

Once your plane trip has been determined, inform your airline company, that you will be using an electric wheelchair, and follow their instructions. At this time, provide the airline company with details of your wheelchair. In particular, see the specifications for the battery you are using below.

Nickel metal hydride battery (shown as "Ni-MH" on the lable)

Model	JWB2
Voltage	24 V
Capacity	6,7 Ah (160,8 Wh)
Type	Dry cell with built-in microcomputer

Lithium ion battery (shown as "Li-ion" on the lable)

Model	ESB 1
Voltage	25 V
Capacity	11,8 Ah (295 Wh)
Type	Dry cell with built-in microcomputer



About the lithium ion battery

There may be restrictions in regards to carrying the lithium ion battery on-board, or checking in as baggage. Be sure to consult the airline company in advance.



Print-out

Make sure to print al the following documents and keep handy att all times at the airport.

SELF-DECLARATION of CONFORMITY to IATA DANGEROUS GOODS REGULATIONS

Products	UN/ID No.	Proper Shipping Name	Special Provisions		Comment
			UN	IATA	
YAMAHA Lithium ion Battery (ESB1)	UN3480	LITHIUM ION BATTERIES	SP188 SP230 SP310 SP348 SP376 SP377 SP384 SP387	A88 A99 A154 A164 A183 A201 A206 A213 A331 A334 A802	ESB1 is classified UN and IATA dangerous goods and must be transported in accordance with special provisions on the left.

Limitations (IATA DGR)	IATA Dangerous Goods Regulation 63th edition provides the restrictions and instructions with regard to carrying Lithium Ion Batteries for Wheelchairs, in clause: 2.3 The dangerous goods with passengers and flight crew 2.3.2 Goods Acceptable with Operator Approval, as Checked Baggage Only 2.3.2.4 Wheelchairs/Mobility Aids with Lithium Batteries
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Verdict and Instructions	YAMAHA Lithium ion Battery (ESB1) is for an electric wheelchair, so applicable to the above limitations. Also the battery does not exceed 300Wh (actual capacity of ESB1 = 295Wh) and meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3. Therefore, the battery is transportable by aircraft when the user and the operator follow the instructions in the above limitations. The main instructions in the above limitations are as follows: The battery must be removed from the vehicle. The battery must be protected from short circuit by insulating the terminals (e.g. by protective cap). The removed battery must be protected from damage for example by placing each battery in a protective pouch. The battery must be carried in the passenger cabin. Final instructions are subject to airline companies with reference to this document.
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Date	2022/2/11
Company Name	YAMAHA MOTOR CO., LTD. Smart Power Vehicle Unit JW Wheelchairs Division
Name	Michiyo Yamazaki
Signature	

YJ2022LE-O

Safety data sheet for product

- This product is an "article" used with the contents sealed. Therefore, issuing and providing SDS is not required by the GHS or any law based on GHS.
- This document has been prepared not to satisfy requirements such as GHS, but for the purpose of providing safety information to customers.
- Refer the other document issued by the shipper, when you want to know whether your current packaging and content comply with transport regulations.

1. PRODUCT AND COMPANY IDENTIFICATION

- Product name: Lithium ion rechargeable battery cell
- Product code: None
(All models Sanyo manufactured including the cell branded as Panasonic.)
- Company name: Sanyo Electric Co., Ltd., Panasonic group
- Address: 1-1 Matsushita-cho, Moriguchi City, Osaka 570-8511, Japan
- Telephone number: +81-80-8932-7972
- Emergency telephone number: +81-6-6994-4933

2. HAZARDS IDENTIFICATION

For the battery cell, chemical materials are stored in a hermetically sealed metal or metal laminated plastic case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there are no physical hazards such as ignition, explosion and chemical hazards due to leakage of battery contents.

However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery cell case will be breached at the extreme, hazardous materials may be released.

Also, if it is heated strongly by surrounding fires or the like, there is a possibility that irritating or harmful gas may be generated.

- GHS classification: Not available
(This product is outside the scope of GHS system since it's considered as an "article".)
- Most important hazard and effects
Human health effects:
 - Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.
 - Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and stimulation on the skin.
 - Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.Environmental effects: Since a battery cell remains in the environment, do not throw out it into the environment.
- Specific hazards:
 - If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride.
 - Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

3. COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation: Preparation
- Information about the chemical nature of product: ^a

Portion	Material name	CAS No.	Concentration range (wt %)
Positive electrode	Lithium transition metal oxidate (Li[M] _m [O] _n) ^b	12190-79-3 12031-65-1 12057-17-9 182442-95-1 207803-51-8	20~60
Positive electrode's base	Aluminum	7429-90-5	1~10
Negative electrode	Carbon	7782-42-5 7440-44-0	10~30
Negative electrode's base	Copper	7440-50-8	1~15
Electrolyte	Ethyl methyl carbonate Diethyl carbonate Ethylene carbonate Lithium hexafluorophosphate	623-53-0 105-58-8 96-49-1 21324-40-3	5~25
Outer case	Aluminum, iron, aluminum laminated plastic	7429-90-5 7439-89-6	1~30

a Not every product includes all of these materials.

b The letter M means transition metal and candidates of M are Co, Mn, Ni and Al. One compound includes one or more of these metals and one product includes one or more of the compounds. The letter m and n means the number of atoms.

4. FIRST-AID MEASURES

Spilled internal cell materials

- Inhalation:
Make the victim blow his/her nose, gargle. Seek medical attention if necessary.
- Skin contact:
Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.
- Eye contact:
Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and spilled internal cell materials

- Ingestion:
Wash out mouth thoroughly. Do not make the victim vomit, unless instructed by medical personnel. Seek medical attention immediately.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Specific hazards: Corrosive gas may be emitted during fire.
- Specific methods of fire-fighting: When the battery burns with other combustibles simultaneously, take fire-extinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.
- Special protective equipment for firefighters: Refer to Section 8-EXPOSURE CONTROLS / PERSONAL PROTECTION (WHEN THE ELECTROLYTE LEAKS)

6. ACCIDENTAL RELEASE MEASURES

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

- Precautions for human body:
Remove spilled materials with protective equipment (refer to Section 8-EXPOSURE CONTROLS / PERSONAL PROTECTION (WHEN THE ELECTROLYTE LEAKS)). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.
- Environmental precautions: Do not throw out into the environment.
- Method of cleaning up: The spilled solids are put into a container. The leaked place is wiped off with dry cloth.
- Prevention of secondary hazards: Avoid re-scattering. Do not bring the collected materials close to fire.

7. HANDLING AND STORAGE

- Handling suggestions
 - Do not connect the positive terminal to the negative terminal with electrical wire or chain.
 - Avoid polarity reverse connection when installing the battery to an instrument.
 - Do not wet the battery with water, seawater, drink or acid; or expose to strong oxidizer.
 - Do not damage or remove the external tube.
 - Keep the battery away from heat and fire.
 - Do not disassemble or reconstruct the battery; or solder the battery directly.
 - Do not give a mechanical shock or deform.
 - Do not use unauthorized charger or other charging method. Terminate charging when the charging process doesn't end within specified time.
- Storage
 - Do not store the battery with metalware, water, seawater, strong acid or strong oxidizer.
 - Make the charge amount less than or equal to 50% then store at -20~40 degree C in a dry (humidity: 45~85%) place.
Since deterioration will be faster in the high temperature range than in the low temperature range, so do not keep it in the high temperature range beyond the period that is specified by the seller or owner.
 - Use insulative and adequately strong packaging material to prevent short circuit between positive and negative terminal when the packaging breaks during normal handling. Do not use conductive or easy to break packaging material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION (WHEN THE ELECTROLYTE LEAKS)

- Control parameters
ACGIH has not been mentioned control parameter of electrolyte.
- Personal protective equipment
 - Respiratory protection: Respirator with air cylinder, dust mask
 - Hand protection: Protective gloves
 - Eye protection: Goggles or protective glasses designed to protect against liquid splashes
 - Skin and body protection: Working clothes with long sleeve and long trousers

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance
 - Physical state : Solid
 - Form : Cylindrical or Prismatic or Pouch (laminated)
 - Color : Metallic color or black (without tube if it has tube)
 - Odor : No odor
 - Density : N/A
 - Boiling Point : N/A
 - Melting Point : N/A
 - Evaporation Rate : N/A
 - Vapor Pressure : N/A
 - Molecular Weight : N/A
 - Solubility : N/A
 - pH : N/A
 - Viscosity : N/A
 - Other Information : N/A

10. STABILITY AND REACTIVITY

- Stability: Normally stable unless a strong shock is applied or heated strongly
- Possibility of hazardous reactions: Damage to the container may cause leakage of contents. Contents may leak or ignite due to temperature rise.
- Conditions to avoid: Crushing or deformation, use and storage at 80 degree C or higher or at high humidity. Usage at a voltage or a current outside the rating and external short circuit.
- Incompatible materials: Conductive material such as water or metal pieces. Oxidizing agent such as bleach.
- Hazardous decomposition products: Irritating or harmful gases are released if a leakage or fire occurs.

11. TOXICOLOGICAL INFORMATION**Organic Electrolyte**

- Acute toxicity:
LD₅₀, oral - Rat 2,000mg/kg or more
- Irritating nature: Irritative to skin and eye

12. ECOLOGICAL INFORMATION

- Persistence/degradability:
Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

13. DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal:

Product (waste from residues)

Specified collection or disposal of lithium ion battery is required by the law like as "battery control law" in several nations. Collection or recycle of the battery is mainly imposed on battery's manufacturer or importer in the nations recycle is required.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

14. TRANSPORT INFORMATION

In the case of transportation, avoid exposure to high temperature and prevent the formation of any condensation. 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. Please refer to Section 7-HANDLING AND STORAGE also.

The table mentioned below is applied to only the lithium ion rechargeable battery cell described in Section 1-PRODUCT AND COMPANY IDENTIFICATION.

	LAND TRANSPORT (ADR)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN Number ^a	3480	3480	3480
Proper Shipping Name ^a	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Hazard Class	9	9	9
Packing Group ^b	II	II	II

^a UN Number is 3481 in case of the battery is contained in equipment or packed with equipment, and Proper Shipping Name is "lithium ion batteries contained in equipment" or "lithium ion batteries packed with equipment".

UN Number is 3171 in case of the battery is contained in vehicle which is only powered by the battery, and Proper Shipping Name is "Battery-powered vehicle".

^b Lithium ion rechargeable battery cell is not assigned to packing groups, and the packaging performance level is set out in the applicable packing instruction. Packing group II is often set out.

15. REGULATORY INFORMATION

- Regulations specifically applicable to the product:
 - Wastes Disposal and Public Cleansing Law [Japan]
 - Law for Promotion of Effective Utilization of resources [Japan]
 - US Department of Transportation 49 Code of Federal Regulations [USA]

** About overlapping regulations, please refer to Section 14-TRANSPORT INFORMATION.*

16. OTHER INFORMATION

- This safety data sheet is offered an agency who handles this product to handle it safely.
- The agency should utilize this safety data sheet effectively (put it up, educate person in charge) and take proper measures.
- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.**
- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

Reference

Dangerous Goods Regulations – 63rd Edition Effective 1 January 2022: International Air Transport Association (IATA)
IMDG Code – 2020 Edition: International Maritime Organization (IMO)
The European Agreement concerning the International Carriage of Dangerous Goods by Road – 2021:
The United Nations Economic Commission for Europe (UNECE)

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