

2023年1月1日生效

MSDS Report

Sample Name
& Model

Lithium titanate BATTERY HTC4610

Applicant

HUNAN HUAHUI NEW ENERGY CO.,LTD

Address

No.8, Zizhu Road, Heshan District, Yiyang City, Hunan
Province, China



No.: MQI98HEG2136917U3
Code: lt5WDP88



北京实验室: (010) 83055000	新疆实验室: (0991) 6684186	贵州实验室: (0851) 85221000	合肥实验室: (0551) 63843474
北京诺尼科技公司: (010) 80415661	石家庄实验室: (0311) 85376660	上海实验室: (021) 64851999	深圳实验室: (0755) 26050909
北京诺尼计量实验室: (010) 82492998	西安实验室: (029) 89608785	苏州实验室: (0512) 62997900	深圳诺尼检测: (0755) 26050909-846
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Material Safety Data Sheet

Reference to ST/SG/AC.10/30/Rev.9 (GHS)

Section 1 - Chemical Product and Company Identification

Chemical Product Identification

Sample Name: Lithium titanate BATTERY

Sample Model: HTC4610

Recommended Uses: N/A

Restrictions on Use: N/A

Supplier Name: Hunan Huahui New Energy Co.,Ltd

Address: No.8, Zizhu Road, Heshan District, Yiyang City, Hunan Province, China

Phone Number: 0769-81601908

FAX: 0769-81601768

E-mail: 65579673@qq.com

Emergency Phone Number: 0769-81601908

Section 2 - Hazards Identification

Emergency overview: This product is a battery. Intended use of the product should not result in exposure to the chemical substance. In case of rupture the below hazards exist.

Classification according to GHS

Acute toxicity, oral (4)

Skin corrosion/irritation (2)

Serious eye damage/eye irritation (2A)

Specific target organ toxicity, single exposure; Respiratory tract irritation (3)

Label elements

Hazard pictogram(s):



Signal word:

Warning

Hazard statement(s):

H302 Harmful if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

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Pony Testing International Group
Hotline 400-819-5688 www.ponytest.com

Pony Testing Group Shenzhen Co., Ltd.
Address: 3/F of Building 2, Building 1, Xinhaosheng Industrial Park, Yonghe Road, Qiaotou Community, Baoan District, Shenzhen, Guangdong, China
Phone: 0755-26050909

北京实验室: (010) 83055000 郑州实验室: (0371) 69350670 成都谱尼计量实验室: (028) 87702708 宁波实验室: (0574) 87736499
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Precautionary statement(s):**Prevention:**

- P264 Wash skin and clothing thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P280 Wear protective gloves, protective clothing, eye protection, face protection.
 P261 Avoid breathing dust, fume, gas, mist, vapours, spray.
 P271 Use only outdoors or in a well-ventilated area.

Response:

- P301 + P312 IF SWALLOWED: Call a POISON CENTER if you feel unwell.
 P330 Rinse mouth.
 P302 + P352 IF ON SKIN: Wash with plenty water.
 P321 Specific treatment (See additional emergency instructions).
 P333 + P313 If skin irritation or rash occurs: Get medical advice.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337 + P313 If eye irritation persists: Get medical advice.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 Call a POISON CENTER, if you feel unwell.

Storage

- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

Disposal:

- P501 Send contents to approved waste treatment plants.

Other hazards

Physical and chemical hazards: See Section 10

Human health hazards: See Section 11

Environmental hazards: See Section 12

Section 3 – Composition/Information on Ingredients

Chemical characterization: Mixture

Chemical Composition	CAS No.	EC#	Weight (%)
Lithium manganese oxide	12057-17-9	601-724-5	25
Cobaltate, lithium	12190-79-3	235-362-0	25



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Dilithium titanate	12031-82-2	234-759-6	20
Aluminium	7429-90-5	231-072-3	15
Phosphate(1-), hexafluoro-, lithium	21324-40-3	244-334-7	10
Polyvinylidene fluoride resin	24937-79-9	607-458-6	5

Section 4 - First Aid Measures

Description of first aid measures

General information No special measures required.

After eye contact

Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.

After skin contact

Remove contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.

After inhalation

Remove victim to fresh area. Administer artificial respiration if breathing is difficult. Seek medical attention.

After swallowing

Do not induce vomiting. Get medical attention.

Personal protective equipment for first-aid responders: No data available.

Most important symptoms/effects, acute and delayed: No data available.

Indication of immediate medical attention and special treatment needed: Treat symptomatically.

Section 5 - Fire Fighting Measures

Suitable extinguishing media:

Small Fire: Dry chemical, CO₂, water spray or regular foam. Large Fire: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk.

Unsuitable extinguishing media:

No data available.

Specific Hazards arising from the chemical:

Special hazards arising from the substance or mixture

Battery may burst and release hazardous decomposition products when exposed to a fire situation.

Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when



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subjected to high temperature(>150°C(302°F)), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in close proximity.

Specific protective actions for fire-fighters:

Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

Personal precautions:

As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind, uphill and/or upstream. Ventilate closed spaces before entering. Large Spill: Consider initial downwind evacuation for at least 100 meters (330 feet).

Protective equipment:

No data available.

Emergency procedures:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Absorb with earth, sand or other non-combustible material. Leaking batteries and contaminated absorbent material should be placed in metal containers.

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and materials for containment and cleaning up:

For all waste handling must refer to United Nations, National and Local Regulations for disposal.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Section 7 - Handling and Storage

Precautions for safe handling:

Avoid short circuiting the battery. Avoid mechanical damage of the battery. Do not open or disassemble. Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity. Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps.

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

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Pony Testing International Group
Hotline 400-819-5688 www.ponytest.com

Pony Testing Group Shenzhen Co., Ltd.
Address: 1/F of Building 2, Building 1, Xinhaocheng Industrial Park, Yonghe Road, Qiaotou Community, Baoan District, Shenzhen, Guangdong, China
Phone: 0755-26050909

北京实验室: (010) 83055000 郑州实验室: (0371) 69350670 成都谱尼计量实验室: (028) 87702708 宁波实验室: (0574) 87736499
北京谱尼科技公司: (010) 80415661 烟台谱尼职业卫生公司: (0371) 80967099 贵州实验室: (0851) 85221000 合肥实验室: (0551) 63843474
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Section 8 - Exposure Controls/Personal Protection

Control parameters

CAS No.	ACGIH	NIOSH	OSHA
12057-17-9	N/A	N/A	N/A
12190-79-3	N/A	N/A	N/A
12031-82-2	N/A	N/A	N/A
7429-90-5	TLV-TWA 1mg/m ³	REL-TWA 2mg/m ³ REL-TWA 5mg/m ³ REL-TWA 10mg/m ³	PEL-TWA 5mg/m ³ PEL-TWA 15mg/m ³
21324-40-3	N/A	N/A	N/A
24937-79-9	N/A	N/A	N/A

Appropriate engineering controls:

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Personal Protective Equipment:

Respiratory protection: Wear suitable protective mask. For a large large number of battery leakages, wear chemical protective clothing, including self-contained breathing apparatus.

Hand Protection: Wear appropriate protective gloves to reduce skin contact.

Eye Protection: Wear safety goggles or eye protection combined with respiratory protection.

Skin and Body Protection: Working environment required, wear suitable protective clothing to minimize contact with skin. The type of protective equipment must be according to the concentration and the content of certain hazardous substances in the workplace.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Colour:

Silver.

Physical State:

Cylindrical.

Odour:

Not available.

pH:

Not available.

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☎Hotline 400-819-5688 www.ponytest.com

Pony Testing Group Shenzhen Co., Ltd.
Address: 3/F of Building 2, Building 1, Xinhaosheng Industrial Park, Yonghe Road, Qiantou Community, Baoan District, Shenzhen, Guangdong, China
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Melting point/freezing point:	Not available.
Boiling point or initial boiling point and boiling range:	Not available.
Flash Point:	Not available.
Flammability:	Not available.
Solubility:	Not available.
Lower and upper explosion limit/flammability limit:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Kinematic viscosity:	Not available.
Partition coefficient: n-octanol/water (log value):	Not available.
Vapour pressure:	Not available.
Density and/or relative density:	Not available.
Relative vapour density:	Not available.
Particle characteristics:	Not available.
Other information:	
Voltage	2.4V
Electric capacity	5mAh
Electric Energy	0.012Wh

Section 10 - Stability and Reactivity

Reactivity: No data available.

Chemical stability: Stable.

Possibility of hazardous reactions: No data available.

Conditions to Avoid: Flames, sparks, and other sources of ignition, incompatible materials.

Incompatible materials: Oxidizing agents, acid base.

Hazardous decomposition products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

Section 11 - Toxicological Information

Acute Toxicity:

CAS No.	LC50/LD50
12057-17-9	No data available.
12190-79-3	No data available.
12031-82-2	No data available.



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7429-90-5	No data available.
21324-40-3	No data available.
24937-79-9	No data available.

Skin corrosion/irritation: No data available.

Serious eye damage/irritation: No data available.

Respiratory or Skin sensitization: No data available.

Germ Cell mutagenicity: No data available.

Carcinogenicity: No data available.

Reproductive toxicity: No data available.

Specific target organ toxicity-Single exposure: No data available.

Specific target organ toxicity-Repeated exposure: No data available.

Aspiration hazard: No data available.

Information on the likely routes of exposure: No data available.

Eye: No data available.

Skin: No data available.

Ingestion: No data available.

Inhalation: No data available.

Section 12 - Ecological Information

Ecological Toxicity: No data available.

Persistence and degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other adverse effects: No data available.

Section 13 - Disposal Considerations

Disposal methods:

Recommendation:

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packaging


Recommendation: Disposal must be made according to official regulations.



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Section 14 - Transport Information

UN or ID Number	
IATA	UN3480
IMDG	UN3480
Model Regulation	UN3480
Proper Shipping Name/Description	
IATA	Lithium ion batteries
IMDG	LITHIUM ION BATTERIES
Model Regulation	LITHIUM ION BATTERIES
Class or Div. (Sub Hazard)	
IATA	9
Packing Group	
IATA	N/A
IMDG	N/A
Model Regulation	N/A
Hazard Label	
IATA	
IMDG	N/A
Model Regulation	N/A
Environmental hazards	
Marine pollutant:	No
IMDG EmS:	F-A. S-I
Special precautions for user	No information available.

Transport information: The Lithium titanate BATTERY HTC4610 has passed the test UN38.3, according to the report ID: MOI73RVT11896721.

According to the Packing Instruction 965 section IB of IATA DGR 64th Edition for transportation, Cargo aircraft only.

According to the special provision 188 of IMDG (40-20) or the special provision 188 of <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (22nd), the goods are not subject to other provision of this code.



Pony Testing International Group

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Separate batteries to prevent short-circuiting, and they should be packed in strong package during transport. Lithium cell or battery should incorporate a safety venting device or be designed to prevent a violent rupture under normal transport conditions. Keep away from high temperature and open flames.

Note: State of Charge (SoC) not exceeding 30% of their rated capacity. (By air, Lithium ion batteries)

Transport Fashion: By air, by sea, by railway, by road.

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

CAS No.	TSCA	IECSC	DSL/NDSL	EINECS/ ELINCS/ NLP
12057-17-9	Listed	Listed	Listed DSL	Listed
12190-79-3	Listed	Listed	Listed DSL	Listed
12031-82-2	Listed	Listed	Listed DSL	Listed
7429-90-5	Listed	Listed	Listed DSL	Listed
21324-40-3	Listed	Listed	Listed DSL	Listed
24937-79-9	Listed	Listed	Listed DSL	Listed

Section 16 - Other Information

Issue Date: 2022-12-23

Issue Department: Technical department

Modification record:

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Other Information:

PONY 谱尼测试
Pony Testing International Group
Hotline 400-819-5688 www.ponytest.com

Pony Testing Group Shenzhen Co., Ltd.
Address: 3/F. of Building 2, Building 1, Xinhaosheng Industrial Park, Yonghe Road, Qiaotou Community, Baoan District, Shenzhen, Guangdong, China
Phone: 0755-26050909

北京实验室: (010) 83055000 郑州实验室: (0371) 69350670 成都谱尼计量实验室: (028) 87702708 宁波实验室: (0574) 87736499
北京谱尼科技公司: (010) 80415661 烟台谱尼职业卫生公司: (0371) 80967099 贵州实验室: (0851) 85221000 合肥实验室: (0551) 63843474
北京谱尼计量实验室: (010) 82492998 新疆实验室: (0991) 6684186 上海实验室: (021) 64851999 深圳实验室: (0755) 26050909
青岛实验室: (0532) 88706866 石家庄实验室: (0311) 85376660 苏州实验室: (0512) 62997900 深圳谱尼计量实验室: (0755) 26050909-846
天津实验室: (022) 23607888 西安实验室: (029) 89608785 苏州汽车座椅实验室及儿童安全座椅 谱尼深圳通测: (0755) 27673339
长春实验室: (0431) 80530198 西安谱尼检测技术有限公司: (029) 81123093 碰撞实验室: (0512) 62997900 广州实验室: (020) 89224310
沈阳实验室: (024) 22811886 西安谱尼检测技术有限公司: (029) 85729073 武汉实验室: (027) 83997127 南宁实验室: (0771) 5518818
大连实验室: (0411) 87336618 呼和浩特实验室: (0471) 3450025 武汉车附所: (027) 82318175 厦门实验室: (0592) 5568048
哈尔滨实验室: (0451) 58627755 成都实验室: (028) 87702708 杭州实验室: (0571) 87219096



Pony Testing International Group

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CAS: (Chemical Abstracts Service);
 EC: (European Commission);
 ACGIH: (American Conference of Governmental Industrial Hygienists);
 NIOSH: (US National Institute for Occupational Safety and Health);
 OSHA: (US Occupational Safety and Health);
 TLV: (Threshold Limit Value)
 TWA: (Time Weighted Average);
 STEL: (Short Term Exposure Limit);
 PEL: (Permissible Exposure Level);
 REL: (Recommended Exposure Limit);
 PC-STEEL: (Permissible concentration-short time exposure limit);
 PC-TWA: (Permissible concentration-time weighted average);
 IARC: (International Agency for Research on Cancer);
 LC50: (Lethal concentration, 50 percent kill);
 LD50: (Lethal dose, 50 percent kill);
 EC50: (Median effective concentration);
 BCF: (Bioconcentration Factor);
 BOD: (Biochemical oxygen demand);
 IECSC: (Inventory of Existing Chemical Substances in China);
 NOEC: (No observed effect concentration);
 NTP: (US National Toxicology Program);
 RTECS: (Registry of Toxic Effects of Chemical Substances);
 TOC: (Total Organic Carbon);
 TSCA: (Toxic Substances Control Act of USA);
 DSL: (the Domestic Substances List of Canada);
 NDSL: (the Non-domestic Substances List of Canada);
 IATA: (International Air Transport Association);
 IMDG: (International Maritime Dangerous Goods);
 TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations)

End of report

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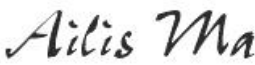

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 Road, Qiaotou Community, Baoan District, Shenzhen, Guangdong, China
 Phone: 0755-26059909

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Safety Data Sheets (SDSs)

Client	Li Da Zhaoneng Battery (Dongguan) Co., Ltd.
Add. of Client	Room 301, No.268, Wanjiang Daxin Road, Wanjiang street, Dongguan City, Guangdong Province
Description	Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO ₂)
Model /Type	AAA LR03 AM-4 1.5V
Manufacturer	Li Da Zhaoneng Battery (Dongguan) Co., Ltd.
Add. of Manufacturer	Room 301, No.268, Wanjiang Daxin Road, Wanjiang street, Dongguan City, Guangdong Province
Nominal Voltage	1.5V
Date of Receipt	2022-11-17

Laboratory	Dongguan ZRLK Testing Technology Co., Ltd.
Address	Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Approved Signatory	Maggie.Gao	
Inspected by	Ailis.Ma	
Censored by	Lahm Peng	





1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name: Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂)

Model: AAA LR03 AM-4 1.5V

Other means of identification

Synonyms:none

Recommended use of the chemical and restrictions on use

Recommended Use:Used in portabl electronic equipments;

Uses advised against:

- a) Do not dismantle, open or shred Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂).
- b) Do not expose Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) to heat or fire. Avoid storage in direct sunlight.
- c) Do not short-circuit an Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂). Do not store Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- d) Do not remove an Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) from its original packaging until required for use.
- e) Do not subject Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) to mechanical shock.
- f) In the event of an Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.
- g) Observe the plus (+) and minus (-) marks on the Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) and equipment and ensure correct use.
- h) Battery usage by children should be supervised.
- i) Seek medical advice immediately if an Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) has been swallowed.
- j) Keep batteries clean and dry.
- k) When possible, remove the battery from the equipment when not in use.
- l) Dispose of properly.

Details of the supplier of the safety data sheet:

Supplier Name: Li Da Zhaoneng Battery (Dongguan) Co., Ltd.

Address: Room 301, No.268, Wanjiang Daxin Road, Wanjiang street, Dongguan City, Guangdong Province

Telephone number of the supplier: 0769-26266360

E-mail address: 2214278998@qq.com

Emergency telephone number

Company Emergency Phone Number: 13650450393

2. HAZARDS IDENTIFICATION

Classification

No harm at the normal use. If contact the Electrolyte in the Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂), reference as follows:

Classification of the substance or mixture

Classification according to GHS

Acute Toxicity, Oral(Hazard category 4)

Acute Toxicity, Dermal(Hazard category 3)

Acute Toxicity, Inhalation (Hazard category 4)

Skin, irritate(Hazard Category 1B)

Hazardous to the aquatic environment, short-term(Acute): (Hazard category Acute 1)

Hazardous to the aquatic environment, long-term(Chronic): (Hazard category Chronic 1)

Eye Irritate (Hazard category 1)

GHS Label elements, including precautionary statements:



GHS02



GHS05



GHS07



GHS09

Signal word: Warning

Hazard statement(s):

H242:Heating may cause a fire;

H314:Causes severe skin burns and eye damage;

H302:Harmful if swallowed;

H332:Harmful if inhaled;

H260:In contact with water releases flammable gases which may ignite spontaneously

H250:Catches fire spontaneously if exposed to air

H400:Very toxic to aquatic life

H410: Very toxic to aquatic life with long lasting effects

precautionary statements:

Prevention:

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261:Avoid breathing dust/fume/gas/mist/vapours/spray.

P271:Use only outdoors or in a well-ventilated area.

P223:Do not allow contact with water.

P231+P232:Handle and store contents under inert gas/...protect from moisture;

P210:Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P222: Do not allow contact with air.

P231+P232:Handle and store contents under inert gas/....Protect from moisture;

P233:Keep container tightly closed.

P273:Avoid release to the environment.

Response:

P312:Call a Poison center or doctor/physician if you feel unwell.

P302+P350-IF ON SKIN: Gently wash with plenty of soap and water

P301+P330+P331-IF SWALLOWED: rise mouth. Do NOT induce vomiting

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340:IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P302+P335+P334:IF ON SKIN:Brush off loose particles from skin and immerse in cool water.

P370+P378: In case of fire: Use...to extinguish

P302+P334:IF ON SKIN:Immerse in cool water or wrap in wet bandages.

P391:Collect spillage.

Storage:

P402+P404:Store in a dry place, store in a closed container.

Disposal

P501: Dispose of contents/container in accordance with local/national regulations

Hazards not otherwise classified (HNOC)

Not Applicable

Other information

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterixation: Mixtures

Description:

Product: Consisting of the following components.

Common Chemical Name	Concentration (%)	CAS Number
Nickel hydroxide	9.5	12054-48-7
Zinc chloride	8.50	7646-85-7
Ammonium chloride	9.70	12125-02-9
Carbon	15.8	7440-44-0
Manganese dioxide	25	1313-13-9
Zinc	30.5	7440-66-6
Iron	1	7439-89-6

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

4. FIRST-AID MEASURES

First aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Remove contaminated clothing and shoes. Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Swallowing Do not induce vomiting. Get medical attention.

Most Important Symptoms/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

CO₂, dry chemical powder, water spray.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Chemical

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide(CO)

Carbon dioxide

Other irritating and toxic gases.

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No

Sensitivity to Static Discharge No

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. For example: Wear self-contained respiratory protective device. Wear suitable protective clothing and eye/face protection.

Special hazards arising from the substance or mixture:

The leaking electrolyte may be corrosive. Under the conditions of short-circuited, overcharged, overdischarged, punctured, crushed, put into the fire and exposed to a temperature higher than that specified by the manufacturer (100°C), the battery may burn or explode.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes.

Refer to section 8 for personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas.

Environmental precautions

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to item 13.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other non-combustible absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

Wash thoroughly after handling. Use this material with adequate ventilation.

The product is not explosive.

Conditions for safe storage, including any incompatibilities

The storage area should be clean, cool, dry, ventilated and weatherproof. Incompatibilities: strong oxidizing agents, corrosives and foods. Such batteries must be packed in inner packaging in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits.

For normal storage, the temperature should be between +10°C and +25°C and never exceed +30°C.

Extremes of humidity (over 95% and below 40% relative humidity) for sustained periods should be avoided since they are detrimental to both batteries and packaging. Batteries should therefore not be stored next to radiators or boilers, nor in direct sunlight.

The above recommendations are equally valid for storage conditions during prolonged transit. Thus, batteries shall be stowed away from ships' engines and not left for long periods in unventilated metal box cars during summer.

Incompatible Products None known.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

none

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992).

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/Face Protection:



Tightly sealed goggles

Body protection:

Protective work clothing.

Skin protection:



Protective gloves

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Form: Solid
	Color: Blue
	Odour: Monotony
	Odor Threshold: No information available
Change in condition:	
pH, with indication of the concentration	Not determined.
Melting point/freezing point	Not determined.
Initial boiling point and Boiling range:	Not determined.
Flash Point	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapor Pressure:	Not determined.
Vapor Density:	Not determined.
relative density:	Not determined.
Solubility in Water:	Not determined.
Solubility in other solvents	Not determined.
n-octanol/water partition coefficient	Not determined.
Auto-ignition temperature	Product is not self-igniting.
Decomposition temperature	Not determined.
Odour threshold	Not determined.
Evaporation rate	Not determined.
Viscosity	Not determined.
Other Information	No further relevant information available.

10. STABILITY AND REACTIVITY

Reactivity: Stable under recommended storage and handling conditions (see section 7, Handling and storage).

Chemical stability: Stable under normal conditions of use, storage and transport.

Thermal decomposition/conditions to be avoided: No decomposition if used according to specifications.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to avoid: Strong heating, fire, Incompatible materials.

Incompatible materials: Strong oxidizing agents. Strong acids. Base metals.

Hazardous Decomposition Products: Carbon oxides, Other irritating and toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: No data available.

Skin corrosion/irritation: No irritant effect.

Serious eye damage/irritation: Cause serious eye irritation.

Respiratory or skin sensitization: No sensitizing effects known.

Specific target organ system toxicity: No information available.

CMR effects(carcinogenicity, mutagenicity and toxicity for reproduction): No information available.

12. Ecological Information

Toxicity:

Acquatic toxicity:

No further relevant information available.

Persistence and degradability: No further relevant information available.

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

Land transport

ADR/RID class: Not regulated.

Maritime transport

Non-hazardous for sea transport.

Air transport

Not restricted to IATA DGR according to special provision A123.

The Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂) according to SP A 123 of the 2022 IATA Dangerous Goods regulations 63rd Edition may be transported, and applicable U.S. DOT regulations for the safe transport of Alkaline Zinc-Manganese Dioxide Battery (Zn/MnO₂).

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

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.

The package must be handled with care and that a flammability hazard exists if the package is damaged;

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation:

Authorisations: No information available.

Restrictions on use: No information available.

Regulatory information: No information available.

Chemical safety assessment A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases:

R20/22: Harmful by inhalation and if swallowed.

R36: Irritating to eyes.

H302: Harmful if swallowed.

*****End of SDS*****