Material Safety Data Sheet

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

Section 1: Identification of Product and Supplier

1.1. Identification of the substance or preparation

Product Name: 3V Lithium Manganese Button Battery

Sample Model No.: CR2032

1.2. Relevant identified uses of the substance or mixture and uses advised against

Application of the substance / the preparation: For electric Products

1.3. Company / undertaking identification

Manufacturer: Dongguan Artisan Energy New Energy Technology Co., Ltd.

Address: 202, Building2, Building A, Hengju Science Park, No.280, Dongkeng Science And Technology Road, Dongkeng Town, Dongguan City, Guangdong Province

Tel: /

Fax: /

E-mail: ivy@dslholding.com

1.4. Emergency telephone

Emergency telephone number: [Weekday] /

[Night and holiday] /

SECTION2: Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 IEU-GHS/CLP]

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Classification according to EU Directives 67/548/ECC or 1999/45/EC

Xn Harmful R20/22

2.2 Label elements

Labeling according Regulation (EC) No 1272/2008 [CLP]



Pictogram

Signal word **Warning**

Hazard statement(s)

H302 + H332 Harmful if swallowed or if inhaled

Precautionary statements: none

Supplemental Hazard Statements: none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative(vPvB) at levels of0.1% or higher.

SECTION3: Composition / Information on Ingredients

3.1 Information about the chemical nature of product:

Common chemical name / General name	CAS No.	Concentration /Concentration range
Manganese dioxide	1313-13-9	34.31%
Litium	7439-93-2	1.88%
1,3-Dioxolane	646-06-0	4.02%
Propylene carbonate	108-32-7	3.84%
Iron	7439-89-6	55.08%
Lithium perchlorate	7791-03-9	0.87%

SECTION 4: Emergency measures

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

Eye contact: Flush eyes with water as a precaution..

Skin contact: Wash off with soap and plenty of water.
Consult a physician.

Inhalation: If breathed in, move person into fresh air.
If not breathing, give artificial respiration.

Consult a physician.

Ingestion: Never give anything by mouth to an unconscious person.
Rinse mouth with water,
Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Fire Fighting Measures

5.1 Extinguishing Media:

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture:

Carbon oxides, Iron oxide, zinc oxide, manganese oxide

5.3 Advice for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information:

No data available

SECTION 6: Leak Emergency Treatment

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust, vapours, mist or gas.
Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental Precautions:

Do not let product enter drains.
Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust.
Sweep up and shovel.
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTON 7: Handling and Storage

7.1 Precautions for safe handling:

Avoid contact with skin and eyes.

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool place.

Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non Combustible Solids

SECTION 8: Access Controls / Personal Protection

8.1 Control parameters

Components with workplaee control parameters

Component	CAS No.	Value	Control parameters	Basis
Manganese dioxide	1313-13-9	TWA	1.15 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

Personal Protective Equipment:

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection:

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle r (US) or type ABEK-P2 (EUEN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure:

Prevent further leakage or spillage if safe to do so.

Do not let product enter drains.

Discharge into the environment must be avoided.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance Button, Cylindrical shape

b) Color Silvery

c) Physical state: Solid

d) Smell: Odorless

e) PH (1% soln/water): Not applicable

f) Melting point/freezing point: No data available

g) Initial boiling point and boiling range: No data available

h) Flash point: No data available

i) Evaporation rate: No data available

j) Flammability (Liquid, gas): No data available

k) Upper/lower flammability Upper explosion limit: No data available
or explosive limits: Lower explosion limit: No data available

l) Vapor pressure: No data available

m) Vapor Density: No data available

n) Relative density: No data available

o) Water solubility: Insoluble

P) Partition coefficient: No data available
n-octanol / water

q) Ignition Temperature: No data available

r) Decomposition temperature: No data available

s) Viscosity: No data available

t) Explosive properties: No data available

u) Oxidizing properties: No data available

9.2 Other safety information

Voltage 1.5Volts

SECTION 10: Stability and Reactivity

10.1 Reactivity: No data available
10.2 Chemical Stability: Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions:
No data available
10.4 Conditions to Avoid: Heat, flames, crush, disassemble, short circuit or recharge.
10.5 Incompatible materials:
Conductive materials, water, seawater, strong oxidizers and strong acids.
10.6 Hazardous decomposition products:
Hazardous decomposition product formed under fire conditions. – Carbon oxides, Iron oxide, zine oxide,manganese oxide
Other decomposition products –No data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute Toxicity:
LD50 Oral – Mouse -> 3500 mg/kg
Skin corroMgFn/irritation:
No data available
Serious eye damage/eye irritation:
No data available
Respiratory or skin sensitisation:
No data available
Germ cell mutagenicity:
No data available

Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
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
Additional Information
RTECS: No data available
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological Information

12.1 Toxicity: No data available

12.2 Persistence and degradability:

Since a battery cell and the internal materials remain in the environments, don not bury or throw out into the environment.

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Waste handling

13.1 Waste treatment methods

Product

Burn in a chemical incinerator with an after burner and scrubber b highly flammable.

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport Information

14.1. UN number:

ADR/RID: 3090~3091 IMDG: 3090~3091 IATA: 3090~3091

14.2. UN proper shipping name:

ADR/RID: Lithium Metal Batteries

IMDG/IMO: Lithium Metal Batteries

IATA/ICA: Lithium Metal Batteries

UN-NO.:3090(for lithium metal batteries)

UN-NO.:3091(for lithium metal batteries contained in equipment or lithium ion batteries packed with equipment)

14.3 .Transport hazard class(es):

Label:



ADR/RID: 9 IMDG: 9 IATA:9

14.4 .Packaging group:

ADR/RID: Ⅱ IMDG: Ⅱ IATA: Ⅱ

14.5. Environmental hazards:

ADR/RID: no IMDG: no IATA: no

14.6. Special precautions:

In general, all batteries in all forms of transportation (ground, air, or ocean) must he packaged in a safe and responsible manner.

Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in " strong outer packaging " that prevents spillage of contents.

All original packaging for Dry batteries has been designed to be compliant with these regulatory concerns.

International transport regulations:

U.S. hazardous materials regulations pursuant to 49 CRF 173.185(b),

2023 IATA Dangerous Goods Regulations 64th edition.

IMDG Code pursuant to Special Provision 188(40-20)

The Lithium metal Batteries complies with the current edition—64th 2023 of the IATA regulation:

1) Section Ⅱ of Packing Instruction P1968~1970,For Lithium metal cell or batteries , or packed with equipment,or contained in equipment.
2) UN manual of Tests and Criteria Part Ⅲ,sub-section 38.3 (withstanding a 1.2 m drop test);.
3) For cells with content of lithium is more than 1 g, for batteries with content of lithium is more than 2 g per battery. The rating must be marked on outside of the battery case.

The Lithium metal Batteries must be packaged and offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals) and protects against short circuits.

Note:

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment:

1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations.
2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173. 185.
3. The transport of primary lithium batteries is prohibited aboard passenger aircraft.

Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as" Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment " may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

SECTION 15-Regulatory Information

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

This safety datasheet complies with the requirements of Regulation (EC) No.1907/2006.

15.2. Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Water hazard class: Water hazard class 1 (Self- assessment): slightly hazardous for water.

Other regulations, limitations and prohibitive regulations

«Dangerous Goods Regulation»

«Recommendations on the Transport of Dangerous Goods Model Regulation»

«International Maritime Dangerous Goods»

«Classification and code of dangerous goods»

OSHA hazard communication standard (29 CFR 1910.1200)

US Department of Transportation DOT (49 CFR 100-185)

The International Civil Aviation Organization (ICAO) Technical Instructions

The International Air Transport Association (IATA) Dangerous Goods Regulations (64th Edition (Year 2023))

The International Maritime Dangerous Goods (IMDG) Code (2020 Edition): special provision 188,

The UN Recommendations on the Transport of Dangerous Goods Model Regulations and the Manual of Tests and Criteria.

The UN classification number: Class 9, UN3090/UN3091.

EU Directive 2006/66/EC

Toxic Substances Control Act (TSCA) Status

SARA Title III

RCRA

In accordance with all Federal, State and Local laws.

SECTION 16: Other Information

The information contained in this safety data sheet is based on the present state of knowledge and current legislation.

Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modification of the information, we do not assume any responsibility for the results of its use.

This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be constructed as any guarantee of technical performance or suitability for particular applications.

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******End of report******