

Material Safety Data Sheet

Ref.NO.G3702

Section 1-Identification of the Substance and of the Company

.Product details:

.Product name: Lithium-Metal Batteries

.Product code: P068

.Application of the substance: General use.

.Manufacturer/Supplier: Huizhou Markyn New Energy Co., Ltd.

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.Further information obtainable from: Huizhou Markyn New Energy Co., Ltd.

.Information in case of emergency:

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Section 2-Composition/Information on Ingredients

.Description: Mixture of substances listed below with additions.

Ingredients	CAS Number	Approximate(%)by Wt.	Workplace Exposure Limit	
			Long-term (8-hour) ppm mg.m ⁻³	Short-term (15-minute) ppm mg.m ⁻³
Lithium Cobalt Oxide	12190-79-3	25~35%	--	--
Dimethoxyether	110-71-4	4~8%		
Aluminum Shell	7429-90-5	20~30%	4 mg/m ³ (respirable dust)	--
Graphite	7782-42-5	1~3%	--	--
Carboxymethylcellulose Sodium (CMC)	9004-32-4	1-2%	--	--
Lithium Trifluoromethane Sulfonate	33454-82-9	<6%	--	--
Lithium	7439-93-2	1~4%	--	--
Mangesium Aluminum Alloy	7439-95-4	10~15%	--	--

Section 3-Hazards Identification

Emergency Overview: Do not open, puncture or disassemble. Do not expose to fire or open flame. Do not mix with batteries of different sizes, chemistries or types.

Potential Health Effects:

.Inhalation: Under normal conditions of use and handling, no inhalation hazard is present. But like any sealed container, battery may rupture when exposed to excessive heat and this could result in the release of flammable or corrosive materials which may cause irritation to respiratory tract.

.Ingestion: Swallowing a battery can be harmful. Contents of an open battery can cause irritation to mouth, esophagus and gastrointestinal tract.

.Contact with Skin or Eyes: If heated sufficiently to cause decomposition or rupture, fumes or spilled chemical substances can be irritating to skin or eyes. A short circuit may cause electrothermal damage to skin.

.Effects of Overexposure - Chronic: Not found.

Section 4-First Aid Measures

Persons using this product should consult a physician or other medical professional if an accident involving these products in injury. Specific first-aid measures are as follows:

.Eye Contact: In case of contact of the dust when it is being processing or the fume from thermal decomposition, immediately open eyelids and flush eyes with plenty of cold water for at least 15 minutes. Get medical attention immediately if things don't get better.

.Skin Contact: There are no relevant first-aid measures for skin contact as there are no hazards for normal use. If short circuit causes electrothermal damage to skin, flush with plenty of cold water and cover with emollient. If it doesn't get better, get medical attention.

.Inhalation: If the fume from thermal decomposition is inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

.Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately.

Section 5-Fire Fighting Measures

.Extinguishing Media: Dry chemical powder for small fire; Water spray, or alcohol resistant foam for large fire. Don't use water jet.

.Special Fire Fighting Procedures: Structural firefighters must wear self-contained breathing Apparatus and full protective equipment.

.Unusual Fire and Explosion Hazards: Fire or high temperatures may cause battery to vent/or explode or leak hazardous vapors or corrosive material. Damaged or opened batteries can result in rapid heating and the release of hazardous vapors or corrosive materials.

Explosion Sensitivity to Mechanical Impact: Not applicable.

Explosion Sensitivity to Static Discharge: Not applicable.

Section 6-Accidental Release Measures

.Personal precautions: Use proper personal protective equipment as indicated in Section 8. Keep unprotected persons away.

.Measures for Cleaning/Collection:

On Land: If electrolyte spills because of rupture, absorb the spilled with inert materials and collect it in a sealed container for proper disposal. Flush the contaminated surface with plenty of water.

In Water: If possible, remove from water and call local fire/police department.

.Additional Information:

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

The regulations relating to storage remises apply to workshop where the product is handled :

.Handling:

Do not breathe vapors or fumes that may be evolved during processing.

Do not disassemble or burn batteries.

Do not squeeze or pierce batteries.

Do not put batteries into water.

Workers must wear proper protective equipments and must operate strictly according to relative rules.

.Information about fire- and explosion protection:

Keep ignition sources away-Do not smoke.

.Storage:

.Requirements to be met by storerooms and receptacles: Do not store near flame or incompatible materials. Keep battery terminals insulated when in storage or transportation. The temperature in the storeroom must be controlled in a proper range. Avoid long-time direct contact of sunlight.

.Charging: Batteries are designed to be recharged. However, improperly charging a cell or battery may cause the cell or battery to flame. Use only approved chargers and procedures.

Section 8-Exposure Control/Personal Protection

.Engineering Controls:

Keep away from heat and open flame. Store in a cool dry place.

.Ventilation Requirements: Not necessary under normal conditions.

.Personal Protective Equipment (for workers):

.Protection of Hands:

Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.

.Protection of Eyes:

No special requirements for normal handling. Wear safety glasses with side shields if handling an open or leaking battery.

.Protection of Respiratory Tract:

Wear suitable respirators when high concentration is present.

.Protection of Body:

Wear protective uniforms.

.General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid inhaling dust during processing.

Section 9-Physical and Chemical Properties

- .Physical State:** Solid, cylindrical type
- .Odor:** Odorless.
- .Color:** See samples.
- .Solubility in Water:** Insoluble.
- .Self-igniting:** Product is not self-igniting

Section 10-Physical and Chemical Properties

- .Chemical Stability:** Stable under normal temperatures and pressures.
- .Decomposition Products:** Fire or high temperatures may cause battery to vent/or explode or leak hazardous vapors or corrosive material. Damaged or opened batteries can result in rapid heating and the release of hazardous vapors or corrosive materials.
- .Materials to avoid:** Avoid contact of electrolyte if batteries rupture.
- .Hazardous Polymerizations:** Will not occur.
- .Conditions to Avoid:** Avoid exposure or contact to extreme temperatures and combustible materials.

Section 11-Toxicological Information

- .Product Toxicity Data:** No relevant data for this product.
- .General:**

Since the materials in this battery are sealed in the battery case, the potential for exposure to the contents is negligible when the battery is used as directed. However, technical or electrical abuse of the battery may result in the release of battery contents.
- .Sensitivity:** Not found.
- .Teratogenicity:** Not found.
- .Mutagenicity:** Not found.
- .Reproductive toxicity:** Not found.
- Carcinogenicity:** Not listed as a carcinogen by IARC, NTP or OSHA.

Section 12-Ecological Information

- .Ecological Effect:** There are no hazards present under normal use and handling.
- .Additional ecological information:**
- .AOX-Indication:** This product does not contain organically bonded halogen compounds.
- .Effect of material on aquatic life:** DO NOT allow this product to go into aquatic life, or, it will do harm to aquatic life as the chemical substances may spill because of rupture.
- .General Notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even quantities leak into the ground.

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

Section 13-Disposal Consideration

- .Recommendation:** Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- .General Notes:** Battery should be completely discharged prior to disposal. Completely discharged batteries are exempted from the hazardous waste disposal standards under Universal Waste Regulations.
- .Waste recycling must be operated strictly according to relevant regulations.

Section 14-Transport Information

Provisions for the international transportation (pursuant to ICAO-TI/IATA-DGR, IMDG Code, ADR, RID, DOT)

This battery must be subject to:

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-Section II UN CODE: 3090 Hazard Class: 9 Proper Shipping Name: Lithium-Metal Batteries
Europe	Road and Rail	ADR/RID	SP 188
International	Marine	IMDG	SP 188
U.S.A	Rail, Road, Marine	DOT	DOT 49 CFR 172.102

.Shipping Requirements:

IATA: This product is not classified as dangerous under the current 61st (2020) Edition of the IATA-DGR and the packing is in accordance with Section II packing requirements (PI 968).

Section 15-Regulatory Information

.DSCL(EEC): This product is not classified according to the EU regulations.

.TSCA: Chemical components are listed on TSCA inventory.

.California Proposition 65: Not applicable.

.NFPA ratings (scale 0 - 4)

Health = 2; Fire = 1; Reactivity = 1

.HMIS rating (scale 0-4)

Health	1
Flammability	1
Reactivity	0
Hazard Rating:	
Least Slight Moderate High Extreme	
0	1 2 3 4

Health = 1; Flammability = 1; Reactivity = 0

Section 16-Other Information

DISCLAIMER: Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

.Department issuing MSDS:Huizhou Markyn New Energy Co., Ltd.

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