

**MATERIAL SAFETY DATA SHEET**

**Product: Primary Lithium Batteries**

FR03LB4A/10, FR03LB2A/10, FR6LB4A/10, FR6LB2A/10, 6FR61LB1A/10

**Revision: Sep 1, 2018**

**1. Contact**

Contact: MMD Hong Kong Holding Limited

Address: Units 1006-7, 10/F, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Hong Kong

**2. Composition/information on ingredients**

| Ingredient      | Percent | CAS Index No./EC No. | Molecular formula |
|-----------------|---------|----------------------|-------------------|
| Iron Disulfide  | 34.4%   | 1309-36-0            | FeS <sub>2</sub>  |
| Lithium         | 6.2%    | 7439-93-2            | Li                |
| Organic Solvent | 14.8%   | N/A                  | --                |
| Lithium Salt    | 1.6%    | N/A                  | --                |
| Polypropylene   | 2.3%    | N/A                  | --                |
| Steel           | 32.9%   | 7439-89-6            | Fe                |
| Aluminum        | 7.8%    | 7429-90-5            | Al                |

Remark: The weight of metallic lithium per cell is <1.00g.

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### 3. Hazards identification

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Routes of Entry:

Inhalation - Yes

Skin - Yes

Ingestion – Yes

Health Hazards (Acute and Chronic):

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is an acute exposure when the gas release vent works. Organic solvent has slight toxicity and can irritate skin and eyes. Lithium salt is irritating to skin, eyes and mucous membranes and should be avoided.

Carcinogenicity:

NTP: None IARC Monograph: None OSHA Regulated: None

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

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### 4. First aid measures

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|----------------------|---|
| After skin contact : | In case of skin contact with contents of battery, flush immediately with water. If irritation persists, get medical help.                     |
| After eye contact :  | For eye contact, flush with copious amounts of water for 15 minutes. Do not inhale leaked material. If irritation persists, get medical help. |

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## 5. Fire-fighting measures

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Extinguishing Media: CO<sub>2</sub> or dry chemicals

Flammable Limits: Not available

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## 6. Accidental release measures

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The preferred response is to leave the area and allow the batteries to cool and the vapors to dissipate. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

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## 7. Handling and storage

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Avoid mechanical or electrical abuse. Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

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## 8. Exposure controls/personal protection

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Specific control parameter :

Personal protective equipment :

Respiratory protection (Specify Type) : Not necessary under conditions of normal use.

Ventilation: Not necessary under conditions of normal use.

Protective Gloves: Not necessary under conditions of normal use.

Eye protection: Not necessary under conditions of normal use.

Other Protective (Clothing or Equipment): Not necessary under conditions of normal use.

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## 9. Physical and chemical properties

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**Specific Gravity:** (H<sub>2</sub>O=1): FeS<sub>2</sub>: 6.66

**Melting Point:** (°C): FeS<sub>2</sub> decomposes at 1193 deg. C

FeS<sub>2</sub> is a brass-colored, odorless mineral powder.

Lithium is a soft, silvery metal.

Organic solvent is an odorless, colorless or light yellow liquid.

Lithium salt is a white, crystalline and odorless powder.

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## 10. Stability and reactivity

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Stability: Stable

Conditions to Avoid: Do not heat, disassemble or charge.

Hazardous Decomposition or By-products: N/A

Hazardous polymerization will not occur.

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## 11. Toxicological information

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Acute toxicity : Organic solvent

Further toxicological information : Lithium

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## 12. Ecological information

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Ecotoxic effects : N/A

Further ecological data : N/A

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## 13. Disposal considerations

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DO NOT RECHARGE, disassemble, short, or subject battery cells to temperatures in excess of 212°F. Do not use in combination with fresh and used lithium batteries neither with other type of battery.

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## 14. Transport information

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In general, all batteries in all forms of transportation (ground, air, or ocean) must be 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 Gibson Innovations lithium batteries are compliant with these regulatory concerns.

Gibson Innovations lithium iron disulfide batteries are exempt from the classification as dangerous goods as they meet the requirements of the special provisions listed below. (Essentially, they accord with 58<sup>th</sup> edition of the IATA Dangerous Goods Regulations and are properly packaged and labeled. Gibson Innovations Lithium batteries contain less than 1 gram of lithium and pass the tests defined in UN model regulation section 38.3).

| International transport regulations | Special Provisions               |
|-------------------------------------|----------------------------------|
| ADR                                 | 188, 230, 310, 636, 656          |
| IMDG                                | 188, 230, 310, 957               |
| UN                                  | UN 3090, UN 3091                 |
| US DOT                              | 29, A54, A100, A101              |
| IATA, ICAO                          | Packaging Instructions 968 - 970 |

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**15. Regulatory information**

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N/A

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**16. Other information**

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N/A