

## Shenzhen Toby Technology Co., Ltd.

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China Tel: (86) 755-26509301/02 Fax: (86) 755-26509195 Http://www.tobylab.cn

# **MATERIAL SAFETY DATA SHEETS**

#### SAMPLE INFORMATION:

1. Sample Description: LFP Battrey System

2. Brand Name: ---

3. Sample Model: DP-VW614315-01

4. Typical Capacity: 315Ah

5. Manufacturer: Shanghai DU-POWER New Energy Technical Co., Ltd.

6. Manufacturer Address: Building18, 1000 Jinhai Road, Pudong, Shanghai

7. Suggest use and restricted: Storage energy

#### CLIENT INFORMATION

1. Applicant: Shanghai DU-POWER New Energy Technical Co., Ltd.

2. Applicant Address: Building18, 1000 Jinhai Road, Pudong, Shanghai

3. Applicant Post Code: 201206

#### TEST INFORMATION:

1. Applicant No: 190923005

2. Test Items and Request: MATERIAL SAFETY DATA SHEETS

3. Date of Receipt: Aug. 30, 2019 4. Date of Test: Aug. 30-Sep. 05, 2019

#### SUMMARY:

As per request, the contents and formats of the MSDS are prepared in accordance with European Commission Directives 67/548/EEC, 1999/45/EC, Regulation (EC) No 1907/2006, Regulation (EC) No 1272/2008 and Regulation (EU) No 453/2010, and is provided per attached.

#### **REMARKS:**

- 1. Report on important information is provided by the applicant.
- 2. This MSDS report for your reference.

Signed for Shenzhen TOBY

Justin Zhang Manager

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## Section 1 - Identification of the substance /preparation and of the company/ undertaking

| Identification of the preparation | : 1 | LFP Battrey System                     |
|-----------------------------------|-----|--|
| Company Identification            | :   | Shanghai DU-POWER New Energy Technical |
|                                   | 1   | Co., Ltd.                              |
| Company Address                   |     | Building18, 1000 Jinhai Road, Pudong,  |
|                                   |     | Shanghai                               |
| Tel                               | 1:0 | 021-50476766                           |
| Fax                               | :   | 021-50476798                           |
| Emergency Contact No.             |     | +8615825573669                         |
| e-mail                            | :   | ping.shen@du-power.com                 |

## Section 2 - Hazards Identification

| Preparation<br>hazards and<br>classification | Not dangerous with normal use. The battery should not be disassembled or incinerated. Exposure to the ingredients contained within or their combustion products could be harmful.   |
|--|---|
| Primary<br>Route(s)of<br>Exposure            | Inhalation, Ingestion, Skin contact and Eve contact.  |
| Potential Health Effects:                    | Inhalation: Vapors or mists from a ruptured battery may cause respiratory irritation.  Ingestion: The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.  Skin: Skin contact with contents of an open battery can cause severe irritation on burns to the skin.  Eye: Eye contact with contents of an open battery can cause severe irritation or burms to the eye. |

#### Section 3 - Composition/ Information on Ingredients

| Hazardous Ingredients<br>(Chemical Name) | Concentration or concentration ranges (%) | CAS Number |
|--|---|------------|
| Lithium iron phosphate                   | 35-37%                                    | 15365-14-7 |
| Graphite                                 | 15-18%                                    | 7782-42-5  |
| Aluminium                                | 13-14%                                    | 7429-90-5  |
| Ethyl methyl carboxylic acid             | 10-12%                                    | 623-53-0   |
| Thin ethyl carbonate                     | 8-10%                                     | 96-49-1    |
| Copper                                   | 6-7%                                      | 7440-50-8  |
| Lithium hexaflourophosphate              | 2-3%                                      | 21324-40-3 |

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| Polyethylene                  | 2-3%     | 9002-88-4  |
|-------------------------------|----------|------------|
| Polyvinylidene fluoride resin | 0.7-1.1% | 24937-79-9 |

Note: CAS number is Chemical Abstract Service Registry Number. N/A=Not apply.

#### Section 4 - First Aid Measures

| Inhalation   | Move victim to fresh air and remove source of contamination        |
|--|--|
| The state of the s | from area. Seek medical attention.                                 |
| Skin contact   | Wash skin thoroughly with water and remove contaminated clothing   |
|  | and shoes. Get medical help in serious cases.                      |
| Eye contact  | Rinse your eyes thoroughly for at least 15 minutes with plenty     |
| Comments of the second   | of water, occasionally lifting the eyelids and getting medical     |
|  | help.  |
| Ingestion  | Rinse your mouth thoroughly and drink plenty of water. get medical |
|  | help.  |

## Section 5 - Fire-Fighting Measures

| Special         | As with any fire, wear self-contained breathing apparatus to   |
|-----------------|--|
| extinguishing   | avoid breathing in harmful decomposition products.             |
| procedure       |  |
| Characteristics | Toxic fumes, gases or vapors may evolve on burning.            |
| of Hazard       |  |
| Fire            | Please use water, dry sand and other proper fire extinguishing |
| extinguishing   | media.   |
| methods and     |  |
| extinguishing   |  |
| Media           |  |

## Section 6 - Accidental Release Measures

| Personal Precautions,  | Restrict access to area until completion of       |
|--|---|
| protective equipment, and  | clean-up. Do not touch the spilled material. Wear |
| emergency procedures   | adequate personal protective equipment as         |
|  | indicated in Section 8.                           |
| Environmental Precautions  | Prevent material from contaminating soil and from |
| William Milliam  | entering sewers or waterways. Absorb spilled      |
| The state of the s | material with an inert absorbent (dry sand or     |
|  | earth). Scoop contaminated absorbent into an      |

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|  | acceptable waste container. Collect all            |
|--|--|
| 2000   | contaminated absorbent and dispose of according to |
| COLUMN TO THE PARTY OF THE PART | directions in Section 13. Scrub the area with      |
|  | detergent and water; collect all contaminated wash |
|  | water for proper disposal.                         |

## Section 7 - Handling and Storage

| Handling   | Don't handing the batteries in manner that allows    |  |
|--|--|--|
|  | terminals to short circuit. Do not open,             |  |
|  | disassemble, crush or burn battery.                  |  |
| Storage  | If the battery is subject to storage for such a long |  |
| TO 33  | term as more than 3 months. it is recommended to     |  |
| The state of the s | recharge the battery periodically. And recommended   |  |
|  | at-10℃-+45℃ for long period storage .Do not          |  |
|  | storage the battery haphazardly in a box or drawer   |  |
| The state of the s | where they may short-circuit each other or be        |  |
| 33   | short-circuited by other metal objects. Keep out of  |  |
|  | reach of children. Do not expose the battery to heat |  |
| 100  | or fire. Avoid storage in direct sunlight. Do not    |  |
|  | store together with oxidizing and acidic             |  |
| COLUMN TO THE REAL PROPERTY OF THE PARTY OF  | materials.   |  |

## Section 8 - Exposure Controls/ Personal Protection

| Engineering Controls          | No engineering controls are required for handling batteries that have not been damaged. Personal protective equipments for damaged batteries should include chemical resistant gloves and safety glasses.  |
|-------------------------------|--|
| Personal Protective Equipment | Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. Not necessary under conditions of normal use, Protective Gloves: Not necessary under conditions of normal use. Other Protective Clothing or Equipment: Not necessary under conditions of ormal use. Personal Protection is recommended for venting battery: Respiratory Protection. Protective Gloves. Protective |

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Clothing and safety glass with side shields.

#### Section 9 - Physical and Chemical Properties

|                        | Form: Solid  |                |
|------------------------|--|----------------|
| Physical<br>State      | I Color: Black   |                |
| Beate                  | Odour: Odourless   |                |
| Change in              | condition:   |                |
| pH, with               | indication of the concentration  | Not applicable |
| Melting p              | point/freezing point   | Not available. |
| Boiling P<br>Boiling r | Point, initial boiling point and range   | Not available. |
| Flash Poi              | nt   | Not available. |
| Upper/low<br>limits    | ver flammability or explosive  | Not available. |
| Vapor Pre              | essure   | Not applicable |
| Vapor Den              | sity(Air = 1)  | Not applicable |
| Density/r              | relative density   | Not available. |
| Solubilit              | y in Water   | Insoluble      |
| n-octanol              | /water partition coefficient   | Not available. |
| Auto-igni              | tion temperature   | Not available. |
| Decomposi              | tion temperature   | Not available. |
| Odour thr              | reshold  | Not available. |
| Evaporati              | on rate  | Not available. |
| Flammabil              | ity (soil, gas)  | Not available. |
| Viscosity              |  | Not applicable |
| Voltage                | III and the same of the same o | 153. 6V        |

## Section 10 - Stability and Reactivity

| Stability   | The product is stable under normal   |
|---|--|
|   | conditions.  |
| Conditions to Avoid (e.g. static discharge, shock or vibration) | Do not subject lithium battery to mechanical shock. Vibration encountered during |

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|                | transportation does not cause leakage,      |
|----------------|---|
|                | fire or explosion.                          |
| All the second | Do not disassemble, crush, short or install |
|                | with incorrect polarity. Avoid mechanical   |
|                | or electrical abuse.                        |

#### Section 11 - Toxicological Information

| Irritation                            | In the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin. |  |  |
|---------------------------------------|---|--|--|
| Sensitization                         | Not Available   |  |  |
| Neurological Effects                  | Not Available   |  |  |
| Reproductive Toxicity                 | Not Available   |  |  |
| Toxicologically Synergistic Materials | Not Available   |  |  |

## Section 12 - Ecological Information

| Environmental impact:   | Proper use and disposal of batteries will  |  |  |
|-------------------------|--|--|--|
|                         | not damage the environment.Battery         |  |  |
|                         | treatment, away from water, rain and snow. |  |  |
| Environmental pollution | Heavy metal pollution environment, please  |  |  |
|                         | properly dispose of waste batteries.       |  |  |

#### Section 13 - Disposal Considerations

Waste Treatment: Recycle or dispose of in accordance with government, state & local regulations.

Attention for Waste Treatment: Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

#### Section 14 - Transport Information

This report applies to by sea, by air and by land;

The lithium battery tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The lithium battery according to Section II/Section IB of PACKING INSTRUCTION 965, or Section II of PACKING INSTRUCTION 966-967 of the 2019 IATA Dangerous Goods regulations 60th Edition may be transported. And applicable U.S. DOT regulations for the safe transport of lithium battery.

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The lithium battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

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.

Each package must be labeled with a Lithium battery mark and the UN code height is not less than 12mm, or in addition to the UN Class 9 hazard label.

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment(including lithium polymer battery) Marine pollutant (Y/N): N;

- The International Maritime Dangerous Goods (IMDG) Code.

For lithium battery by sea, provided that packaging is strong and prevent the products from short-circuit.

UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment(including lithium polymer battery) Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

### Section 15 - Regulatory Information

| OSHA      | hazard | communication | standard | (29 CFR       | 1910. 1200) |
|-----------|--------|---------------|----------|---------------|-------------|
| Hazardous |        |               | /        | Non-hazardous |             |

#### Section 16 - Other Information

Date: Sep. 05, 2019

Department: Quality department.

Data Audit Units: Shenzhen Toby Technology Co., Ltd.

Disclaimer: The information in this Material Safety Data Sheets (MSDS) was obtained from sources which we believe are reliable; However, the information is provided without any representation of warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with

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the handling, storage, use, or disposal of this product.

All information, recommendations, and suggestions appearing herein concerning this product are taken from sources or based upon data believed to be reliable.

\*\*\*\*\* (END OF REPORT) \*\*\*\*\*

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