



MATERIAL SAFETY DATA SHEET (MSDS)

Report No.: S03A22040417M00101

| | |
|---------------|-----------------------|
| Sample Name: | Li-ion Battery |
| Sample Model: | UE48Li100-3U |
| Applicant: | Upower, Ltd |
| Issue Date: | 2022-04-20 |



Guangdong ESTL Technology Co., Ltd.

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SECTION 1 - IDENTIFICATION OF THE PRODUCT AND SUPPLIER

| | |
|--------------------------|---|
| Sample Name | Li-ion Battery |
| Sample Model | UE48Li100-3U |
| Rating | 48V 100Ah 4800Wh |
| Testing Laboratory | Guangdong ESTL Technology Co., Ltd. |
| Testing Address | Room 101, 201-208, Unit 1, Building 1, No. 9 Headquarters 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China. |
| Applicant | Upower, Ltd |
| Applicant Address | 66A Tzar Asen Srt. Sofia, Republic of Bulgaria |
| Manufacturer | Upower, Ltd |
| Manufacturer Address | 66A Tzar Asen Srt. Sofia, Republic of Bulgaria |
| Inspection According to | According to GB/T16483-2008&ISO11014:2009 |
| Emergency Telephone Call | +34 918 021 649 |
| Tested Date | 2022-04-18 to 2022-04-19 |
| Effective Date | 2022-04-20 |

Tested by

高济斌

Reviewed

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Approved by

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SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENT

| Hazardous Ingredients (Chemical Name) | Concentration or concentration ranges (%) | CAS Number |
|--|--|------------|
| LITHIUM IRON PHOSPHATE | 49.5 | 15365-14-7 |
| PVDF | 0.33 | 24937-79-9 |
| Aluminium | 7.6 | 7429-90-5 |
| Graphite | 16.3 | 7782-42-5 |
| SBR | 0.05 | 9003-55-8 |
| Carboxymethyl cellulose | 0.28 | 9000-11-7 |
| Copper | 6.96 | 7440-50-8 |
| Nickel | 0.06 | 7440-02-0 |
| Lithium Hexafluorophosphate | 10.96 | 21324-40-3 |
| Polyethylene | 4.03 | 9002-88-4 |
| Nylon | 3.93 | 24937-16-4 |

SECTION 3 - HAZARDS IDENTIFICATION

| | |
|------------------|---|
| Explosive Risk | This article does not belong to the explosion dangerous goods. |
| Flammable Risk | This article does not belong to the flammable material. |
| Oxidation Risk | This article does not belong to the oxidation of dangerous goods. |
| Toxic Risk | This article does not belong to the toxic dangerous goods. |
| Radioactive Risk | This article does not belong to the radiation of dangerous goods. |
| Mordant Risk | This article does not belong to the corrosion of dangerous goods. |
| Other Risk | This article is the Li-ion Battery, Watt hour rate 4800Wh. |

SECTION 4 - FIRST AID MEASURES

After Eye Contact: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

After Skin Contact: Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

After Inhalation: If inhaled, quickly leave the site to fresh air. If you stop breathing, perform artificial respiration. If breathing is difficult, supply oxygen.

After Ingestion: If swallowed, wash out mouth with water provided person is conscious. Call a physician.

SECTION 5 - FIRE-FIGHTING MEASURES

Characteristics of Hazard: Toxic fumes; gases or vapors may evolve on burning.

Hazardous Combustion Products: CO, CO₂, HF, phosphorus fluoride.

Fire-extinguishing Methods and Extinguishing Media: Copious amounts of cold water are an effective extinguishing medium for lithium batteries. Don't use warm or hot water. Don't use Halon type extinguishing material.

May use dry powder, sand, earth.

Attention in Fire-extinguishing: The Firemen should put on antigas masks and full fire-fighting suits.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

When leakage of batteries happens, liquid could be absorbed with sands, earth, or other inert substance, and the contaminated area should be ventilated meantime.

Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling: Consumption of food and beverage should be avoided in work areas. Wash hands with soap and water before eating, drinking. Ground containers when transferring liquid to prevent static accumulation and discharge.

Information about fire and explosion protection: Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Conditions for safe storage, including any incompatibilities: Requirements to be met by storerooms and receptacles. Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Maximum Allowable Concentration: No Standard available.

Engineering Controls: No engineering controls are required for handling batteries that have not been damaged. Personal protective equipment for damaged batteries should include chemical resistant gloves and safety glasses.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|------------|-----------|
| Appearance | Black |
| Form | Prismatic |
| Odour | Odorless |

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Incompatibility: Oxidizing agents.

Conditions to Avoid: Heat and open flame, short circuit, and water.

Hazardous polymerization: Will not occur.

Decomposition Products: CO, CO₂, HF, Phosphorus fluoride.

SECTION 11 - TOXICOLOGICAL INFORMATION

Signs & symptoms: None, unless battery ruptures.

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

Inhalation: Lung irritant.

Skin contact: Skin irritant.

Eye contact: Eye irritant.

Ingestion: Poisoning if swallowed.

Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

SECTION 12 - ECOLOGICAL INFORMATION

Ecological Toxicity: N/A

Biodegradability: N/A

Non-biodegradability: N/A

Other Hazardous: Will not effect environmental evidently.

SECTION 13 - DISPOSAL CONSIDERATION

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

| | |
|----------------------|---|
| UN NO. | UN3480 UN3481 |
| Proper Shipping Name | UN3480 Lithium Ion Batteries UN3481 Lithium Ion Batteries Packed with Equipment UN3481 Lithium Ion Batteries Contained in Equipment |
| Label for Conveyance | Lithium Battery Label Class 9 Hazard Label Cargo Aircraft Only Label |

The dangerous goods regulations require that each battery design be subject to tests contained in UNITED NATIONS the "Manual of Test and Criteria" (ST/SG/AC.10/11/Rev.7) Section 38.3.
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The package of battery should be complied with the requirements of Packing Instruction 965/966/967 of IATA DGR 63rd Edition for transportation.

The package of battery should be complied with the requirements of 188 of IMDG-CODE (40-20).

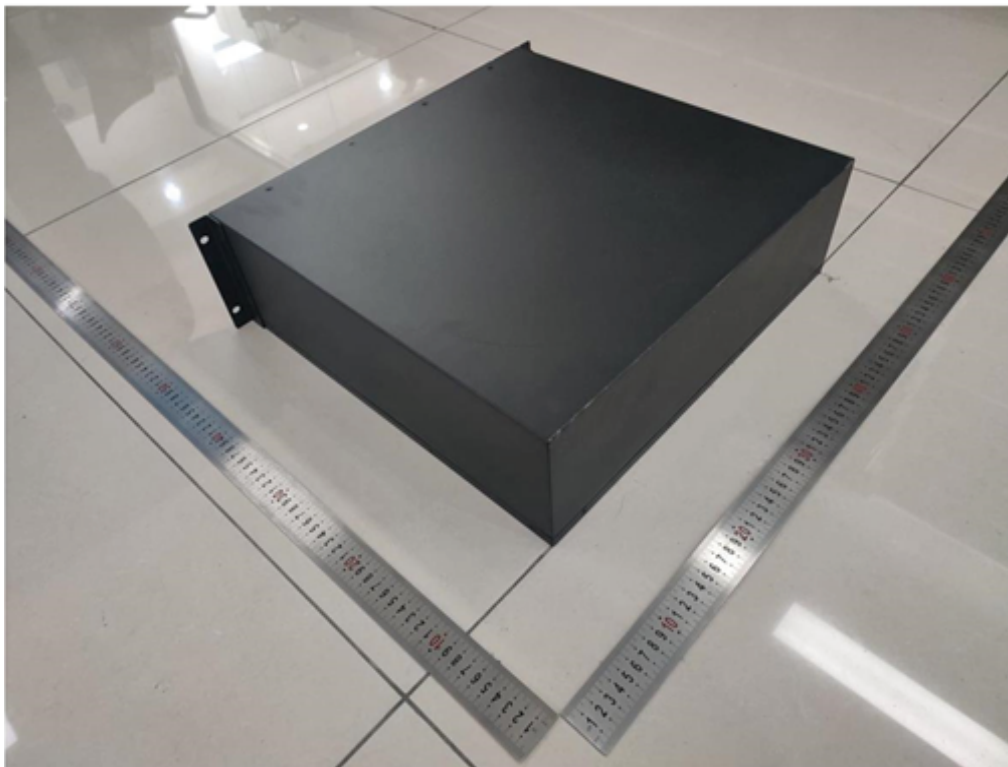
SECTION 15 - REGULATION INFORMATION

Regulatory information: Recommendations on the transport of dangerous goods-model Regulations 21st, IATA dangerous goods regulations 63rd, International Maritime Dangerous Goods Code (40-20), European Agreement concerning the International Carriage of Dangerous Goods by Road (2021), Regulations concerning the International Carriage of Dangerous Goods by Rail (2021).

SECTION 16 - OTHER INFORMATION

This information is not effective to all the batteries manufactured by Upower, Ltd.
This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Guangdong ESTL Technology Co., Ltd. doesn't assume responsibility for any damage or loss because of misuse of batteries. User's should grasp the correct use method and be responsible for the use of batteries.

PHOTOS OF SAMPLES AND LABELS



DECLARATION

1. The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.
2. Objections to the test report must be submitted to ESTL within 15 days.
3. Nobody is allowed to photocopy or partly photocopy this test report without written permission of ESTL.
4. The test report is valid for the tested samples only.
5. The test report is invalid if altered.

End of report