



## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME: Lithium Ion Battery, Phosphate-Based

MODEL/SIZE: All Lithium Iron Phosphate Battery

MANUFACTURER: O'CELL NEW ENERGY TECHNOLOGY CO., LTD

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TELEPHONE: +86-717-6344848

24-hour Emergency: Chemtrec USA (800)424-9300

Chemtrec International (703) 527-3887

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use.**

	CAS #	Approximate percent of total weight
LiFePO <sub>4</sub>	349632-76-4	33%
Carbon(Graphite)	7440-11-0	18%
Electrolyte( LiPF <sub>6</sub> /EC/DMC/EMC)	21324-40-3/96-49-1/616-38-6/623-53-0	13%
Aluminum	7429-90-5	4%
Copper	7440-50-8	8%
Hexafluoropropylene-Vinylidene-Fluoride Copolymer	9011-17-0	3%
PP/PE/PET		2%
Steel	7439-89-6	19%

### 3. HAZARDS/HEALTH IDENTIFICATION

**Emergency Overview** (including Signs and Symptoms, Route(s) of Entry, etc.):

Not dangerous with normal use. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

**Appearance, color and odor:** Solid object with no odor

**Primary Route(s) of Exposure:** These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and Skin contact.

**Potential Health Effects:** In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.

**Inhalation:** Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.

**Ingestion:** Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

**Skin:** Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

**Eye:** Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eyes.

**Medical Conditions Generally Aggravated by Exposure:** N/A

### 4. FIRST-AID MEASURES

**Inhalation:** If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.



**Skin Contact:** If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at

least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

**Eye contact:** If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.

**Ingestion:** If ingestion of contents of an open battery occurs, Never give anything by mouth if victim is rapidly losing conscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

### 5. FIRE-FIGHTING AND EXPLOSION HAZARD DATA

**Flammable Properties:** In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.

**Explosion Data:**

**Sensitivity to mechanical impact:** This may result in rupture in extreme cases.

**Sensitivity to static Discharge:** N/A

**Extinguishing Media:** Carbon dioxide (CO<sub>2</sub>) or dry chemical fire extinguisher, 10-B:C.

**Fire Fighting Instructions:**

**Personnel:** Fight the fire in a defensive mode, while exiting the area. When using a CO<sub>2</sub> fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO<sub>2</sub> extinguishing agent.

**Firefighters:** Use a self-contained breathing apparatus (SCBA).

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment.

**Environmental Precautions:** Prevent material from contaminating soil and from entering sewers or waterways.

**Methods for containment:** Stop the leak if safe to do so. contain the spilled liquid with dry sand or earth. clean up spills immediately.

**Methods for clean-up:** Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of .Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

### 7. HANDLING & STORAGE

**Handling:** Recharge batteries IAW methods specified in applicable technical manuals.

DO NOT:

- Overcharge this battery.
- Abuse, mutilate or short circuit the battery.

**Storage:** Gain approval for storage areas from the Installation Fire Department. Store batteries in a cool (i.e., <130°F), dry and well ventilated area.

DO NOT:

- Store batteries in direct sunlight or under hot conditions.
- Smoke and keep batteries away from open flame or heat.



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O'CELL NEW ENERGY TECHNOLOGY CO., LTD

Model: Lithium Ion batteries File No:S440M 02001 Revised date: Jan 05th, 2024 Page 3 of 4

- Store batteries in the same stacks with hazardous materials.
- Store batteries in office areas, or other areas where personnel congregate.

## 8. PERSONAL PROTECTION

**Engineering Controls:** Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapor.

**Personal protection:**

**Respiration protection:** Self-contained breathing apparatus(not necessary under normal conditions)

**Eye protection:** Not necessary under normal conditions. Wear safety glasses if handling an open or leaking battery.

**Skin protection:** Not necessary under normal conditions. Wear neoprene or natural rubber gloves if handling an open or leaking battery.

**Hygiene Measures:** Do not eat, drink or smoke in work areas. Maintain good housekeeping.

## 9. PHYSICAL & CHEMICAL PROPERTIES

**Physical State:** Solid

**Boiling Point @ 760 mm Hg (°C):** N/A

**Vapor Density (Air = 1):** N/A

**Percent Volatile by Volume (%):** N/A

**Solubility in Water (% by Weight):** Insoluble

**Water/Oil distribution coefficient:** N/A

**Melting Point:** N/A

**Oxidizing Properties:** N/A

**Flash Point and Method(°C):** N/A

**Appearance:** Battery

**Vapor Pressure (mm Hg @ 25°C):** N/A

**Relative Density (water=1):** 1.12 g/cc

**Evaporation Rate (n-Butyl Acetate = 1):** N/A

**PH:** N/A

**Odor Type:** odorless

**Viscosity:** N/A

**Auto Ignition Temperature(°C):** N/A

**Flammability Limits(%):** N/A

## 10. STABILITY & REACTIVITY

**Stable or unstable:** Stable

**Incompatibility (Materials to avoid) :** NA

**Hazardous decomposition products:** This material may release toxic fumes if burned or exposed to fire.

**Condition to Avoid:** Avoid exposing the battery to fire or high temperature. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.

**Watt Hour:** 16Wh marked in the label.

**Possibility of Hazardous Reactions:** Not available

## 11. TOXICOLOGICAL INFORMATION

**Irritation:** Risk of irritation occurs only if the cell inside mechanically, thermally or electrically abused to the point of compromising the enclosure and safety circuitry. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

**Sensitization:** N/A

**Neurological Effects:** N/A

**Teratogenicity:** N/A

**Reproductive Toxicity:** N/A

**Mutagenicity (Genetic Effects):** N/A

**Toxicologically Synergistic Materials:** N/A



### 12. ECOLOGICAL INFORMATION

N/A

### 13. DISPOSAL CONSIDERATION

Battery recycling is encouraged. Do not dump into any sewers, on the ground or into any body of water. Store material for disposal.

### 14. TRANSPORT INFORMATION

International shipments of lithium ion batteries are classified as Class 9, UN3480, Packing Group II, by the International Civil Aviation Organization (ICAO) and the International Maritime Dangerous Goods (IMDG) Code. Packaging, markings and documentation requirements are defined in the 58<sup>th</sup> Edition of International Air Transport Association (IATA) Dangerous Goods Regulations (DGR) Packing Instructions 965 and Packing Instruction P903 of the IMDG Code.

Those lithium cells comply with section IA of PI965, the Watt-Hour is more than 100Wh, and each carton is less than 10KGS. Handle with care, Flammability hazard exists if the package is damaged. An in any event of package is damaged please follow the special procedures.

**The UN classification number:** UN3480

Production of MSDS proving UN manual of Tests and Criteria, part III, subsection 38.3 is met on MSDS

**IATA DGR:** Special Provision A48,A154,A164

### 15. REGULATORY INFORMATION

None

### 16. OTHER INFORMATION

The information contained herein is furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.