

# Material Safety Data Sheet

1. Identification of the product and supplier	
<b>Name of goods</b>	12V 200A slim Lithium iron phosphate battery
<b>Type/Model</b>	MPS-12-200
<b>Rating</b>	12.8V, 200Ah, 2650Wh
<b>Commissioned by</b>	Micronix power systems PTY LTD
<b>Commissioner address</b>	3/27 Leeds st Rhodes NSW, 2138
<b>Manufacturer's name</b>	Micronix power systems PTY LTD
<b>Manufacturer address</b>	3/27 Leeds st Rhodes NSW, 2138
<b>Inspection according to</b>	UN "Recommendations on the TRANSPORT OF DANGEROUS GOODS"
<b>Emergency telephone call</b>	0421 549 029
Date of issue: 2022-01-07	

## 2. Composition Information

Chemical Composition	Chemical Formula	Weight(%)	CAS Number
Lithium Iron Phosphate	LiFePO <sub>4</sub>	33.2	15365-14-7
Polyvinylidene Fluoride (PVDF)	(CH <sub>2</sub> -CF <sub>2</sub> ) <sub>n</sub>	1.2	24937-79-9
Aluminum	Al	4.1	7429-90-5
Graphite	C <sub>24</sub> X <sub>12</sub>	15.6	7782-42-5
Styrene- Butadiene Rubber (SBR)	(C <sub>8</sub> H <sub>8</sub> .C <sub>4</sub> H <sub>6</sub> ) <sub>x</sub>	0.5	9003-55-8
Electrolyte(proprietary)	--	23.0	21324-40-3
Copper Foil (Cu)	Cu	8.74	7440-50-8
Aluminum film Aluminum tab Copper tab and inert materials	--	Remainder	7429-90-5/7440-50-8

## 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	Watt hour rate 2650Wh, which belongs to the Class 9 of dangerous goods

## 4. First aid measures

### Eye

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

### Skin

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

### Inhalation

Remove from exposure and move to fresh air immediately. Use oxygen if available.

### Ingestion

Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

## 5. Fire-fighting measures

**Flash Point:** N/A.

**Auto-Ignition Temperature:** N/A.

**Extinguishing Media:** Water, CO<sub>2</sub>.

**Special Fire-Fighting Procedures:** Self-contained breathing apparatus.

### Unusual Fire and Explosion Hazards:

Cell may vent when subjected to excessive heat-exposing battery contents.

**Hazardous Combustion Products:** Carbon monoxide, carbon dioxide, lithium oxide fumes.

## 6. Accidental release measures

### Steps to be Taken in case Material is Released or Spilled

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

### Waste Disposal Method

It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, and to bury the discharged battery in soil.

## 7. Handling and storage

The battery should not be opened, destroyed or incinerated, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.

Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire.

Do not crush or puncture the battery, or immerse in liquids.

### Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

### Other Precautions

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

## 8. Exposure controls/personal protection

### **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.

### **Ventilation**

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 normal use.

### **Personal Protection is recommended for venting battery**

Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

## 9. Physical and chemical properties

**Appearance:** Quadrate shape

**Odour:** If leaking, smells of medical ether.

**Odor Threshold:** Not applicable.

**pH:** Not applicable.

**Melting Point/freezing point** Not applicable.

**Initial boiling point and Boiling range:** Not applicable.

**Flash Point:** Not applicable.

**Evaporation rate:** Not applicable.

**Flammability (solid, gas):** Not applicable.

**Upper/lower flammability or explosive limits:** Not applicable.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not applicable.

**Relative density:** Not applicable.

**Solubility (water):** Not applicable.

**Solubility (other):** Not applicable.

**n-octanol/water partition coefficient:** Not applicable.

**Auto-ignition temperature:** Not applicable.

**Decomposition temperature:** Not applicable.

## 10. Stability and reactivity

**Stability:** Product is stable under conditions described in Section 7.

**Conditions to avoid:** Heat above 70°C or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.

**Materials to avoid:** Oxidizing agents, alkalis, water.

**Hazardous Decomposition Products:** Toxic Fumes, and may form peroxides.

**Hazardous Polymerization:** N/A.

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

## 11. Toxicological information

**Signs & symptoms:** None, unless battery ruptures.

In the event of exposure to internal contents, vapor 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 severe irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

## 12. Ecological information

**Mammalian effects:** None known at present.

**Eco-toxicity:** None known at present.

**Bioaccumulation potential:** Slowly Bio-degradable.

**Environmental fate:** None known environmental hazards at present.

## 13. Disposal consideration

Do not incinerate, or subject cells to temperature in excess of 70°C, such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

## 14. Transport information

**Label for conveyance:** the Class 9—Lithium Battery hazard label.

**UN Number:** UN3480

**Packing Group:** Group II.

**EmS No:** F-A, S-I

**Marine pollutant:** No

**Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises** No further information.

**UN Proper Shipping name:** Lithium ion batteries

**Transport hazard class(es):** The goods shall be complied with the requirements of Section IA of Packing Instructions 965 or Section I of Packing Instructions 966–967 of 63rd DGR Manual of IATA (2022 Edition) and IMDG CODE (Amdt. 40-20) 2020 Edition, including the passing of the UN38.3 test.



## 15. Regulation information

### Law information

《Dangerous Goods Regulations》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods》

《Occupational Safety and Health Act》 (OSHA)

《Toxic Substance Control Act》 (TSCA)

《Consumer Product Safety Act》 (CPSA)

《Federal Environmental Pollution Control Act》 (FEPCA)

《The Oil Pollution Act》 (OPA)

《Superfund Amendments and Reauthorization Act Title [] (302/311/312/313)》 (SARA)

《Resource Conservation and Recovery Act》 (RCRA)

《Safety Drinking Water Act》 (CWA)

《California Proposition 65》

《Code of Federal Regulations》 (CFR)

In accordance with all Federal, State and local laws.

## 16. Other information

This file is only effective to the batteries (MPS-48-5.1) manufactured by Micronix Power Systems PTY LTD. The commissioner provides the composition information of batteries, and promises its integrity and accuracy. Users should read this file carefully, and use the batteries in the correct method. Micronix Power Systems PTY LTD doesn't assume responsibility for any damage or loss because of misuse of batteries.



Figure 1 Side view of battery module



Figure 2 Front view of battery module

