

Material Safety Data Sheet (MSDS)

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Version 3

Section 1 Product and Company Identification

Product Name Ai1 (All-in-One Remote Monitoring System)
Manufacturer Measurement Science Pty Ltd
 1/23 Albert St, Woolloongabba, QLD. 4102. Australia
 +61 7 3102 4441
Battery Inside LiFePO4 battery pack. 12.8V, 6.0Ah, 76.8Wh

Section 2 Composition and Information on Ingredients

Material or ingredient	Chemical Formula	CAS No.	Wt %
Lithium iron phosphate	LiFePO ₄	15365-14-7	22.4~24.8
Poly(vinylidene fluoride)	[-CH ₂ -CF ₂ -] _n	24937-79-9	0.7~0.9
Sodium carboxymethyl cellulose	[C ₆ H ₇ O ₂ (OH) ₂ OCH ₂ COONa] _n	2593534	0.2
Styrene butadiene rubber	C 12 H 14	9003-55-8	0.3~0.4
Graphite	C	1333-86-4	12~13.2
polypropylene	(C ₃ H ₆) _n	9003-07-0	1.6~2.4
Lithium hexafluorophosphate	LiPF ₆	21324-40-3	1.2~1.4
(DMC) Dimethyl Carbonated	C ₃ H ₆ O ₃	616-38-6	2.4~2.9
(EMC) Methyl-Ethyl Carbonate	C ₄ H ₈ O ₃	623-53-0	4.0~5.6
(EC) Ethylene Carbonate	C ₃ H ₄ O ₃	96-46-1	2.0~2.4
(PVC) Polyvinyl Chloride	(C ₂ H ₃ Cl) _n	9002-86-2	2
Copper	Cu	7440-50-8	7.2~8.0
Aluminum Foil	Al	7429-90-5	3.2~3.6
Iron	Fe	7439-89-6	16~19.2
Nickel	Ni	14332-32-2	0.9
Polybutadiene, low molecular	(C ₄ H ₆) _n	25038-44-2	1.6~4.7
Styrene-maleic anhydride	(C ₈ H ₈ .C ₄ H ₂ O ₃) _x	9011-13-6	4.5~9.3
Ethylene-vinyl acetate copolymer	(C ₂ H ₄) _x .(C ₄ H ₆ O ₂) _y	24937-78-8	0.1
Lead	Pb	7439-92-1	NO
Cadmium	Cd	7440-43-9	No
Mercury	Hg	7439-97-6	No

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 Li-ion Battery, Watt hour rate 96Wh, which belong to the Lithium ion batteries (including lithium polymer batteries)

Section 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.

Section 5 Fire Fighting Measures**Flash Point:**

N/A.

Auto-Ignition Temperature::

N/A.

Extinguishing Media

Dry chemical, CO2.

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

Section 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, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental protection agency and/or federal EPA.

Section 7 Handling and Storage

The battery should not be opened, destroyed or incinerate, 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.

- Section 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.
- Section 9 Physical and Chemical Properties**
- Odor: If leaking, smells of medical ether.**
pH: Not applicable as supplied.
Flash Point: Not applicable unless individual components exposed.
Flammability: Not applicable unless individual components exposed.
Relative density: Not applicable unless individual components exposed.
Solubility (water): Not applicable unless individual components exposed.
Solubility (other): Not applicable unless individual components exposed.
- Section 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: Oxidising 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 alkalies, halogenated hydrocarbons.
- 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**
- 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.

Section 13 Disposal Considerations

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.

Section 14 Transport Information¹

Shippers Declaration:

Not required

Label for conveyance (written on airway bill):

Lithium-Ion Batteries, Contained in Equipment. Packaging Instructions Type 967, Section II.

UN Number on Lithium Battery Mark:

UN3481

Packaging:

Strong Rigid outer packaging

The Lithium Battery Mark and Label for conveyance is not required if shipping two packages or less with no more than one battery per package.

Section 15 Regulatory Information**Law Information**

- Dangerous Goods Regulation
- 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 Substances 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 III (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

Section 16 Additional Information

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¹¹ <https://www.fedex.com/en-au/shipping-guide/pack/lithium-batteries.html>