

Solar MD (PTY) Ltd.
Unit 23, Alternator Park
Montague Gardens 7441
Cape Town, South Africa



MATERIAL SAFETY DATA SHEET

Solar MD (PTY) Ltd

Advanced Lithium-Ion battery

Creation date: 2019/02/06

Material Safety Data Sheet

1 Identification of chemical and supplier

Product Identifier

Product Identification: Lithium-Ion Rechargeable Battery module

Cell Type: LiFePO4

Product Name	Lithium-Ion Battery (LiFePO4)
Type	SS106 / SS202 / SS4037 / SS4074 / MSS33 / CAM72

Company Identifier

Name	Solar MD (PTY) Ltd
Address	Unit 23, Alternator park, 7 Alternator Avenue, Montague Gardens, Cape Town, South Africa
Postal code	7441
Telephone number	+27 21 555 2181

2 Hazards Identification

Hazard	Pictograms		
	GB6944 9th Goods		

Hazard Statements

Description	Not classified as dangerous or hazardous with normal use. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused. If this occurs, it may cause electrolyte leakage. Electrolyte is flammable, in case of electrolyte leakage, move the battery from fire immediately
Hazard	It may cause electrolyte leakage and vapour generated from burning batteries,



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	may make eyes, skin and throat irritate.
Inhalation	Not classified as dangerous or hazardous with normal use. Vapors or mists from a ruptured cell may cause respiratory irritation. Not classified as dangerous or hazardous with normal use.
Ingestion	Swallowing the contents of an open cell can cause serious chemical burns of mouth and esophagus.
Skin contact	Not classified as dangerous or hazardous with normal use. Skin contact with contents of an open cell can cause severe irritation or burns to the skin.
Eye contact	Not classified as dangerous or hazardous with normal use. Eye contact with contents of an open cell can cause severe irritation or burns to the eye.

Response

Inhalation	Remove to fresh air immediately. Seek medical treatment
Ingestion	Induce vomiting unless patient is unconscious. Seek medical treatment
Skin contact	Wash the affected contact area immediately with lots of water and soap. Seek medical treatment.
Eye contact	Rinse eyes with lots of water immediately. Keep your eyes in the water for at least 15 minutes to flush the eyes out. Seek medical treatment

3 Composition/ Information on Ingredients

Component	CAS#	% (by weight)
LifePO4	15365-147	20-30
Carbon	7440-44-0	10-18
Electrolyte - LiPF6	21324-40-3	15-25
Electrolyte - Solvent	/	
PP/PE	9003-07-0	2-5
Copper	7440-50-8	18-16
Aluminum	7429-90-5	12-20

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4 Firefighting Measures

Extinguishing Fire

Small Fire	Dry powder, sand, Carbon Dioxide (CO ₂), Water spray
Large Fire	Water spray, Fire emergency call to local fire department

Fire Precautions and Protective Measures

Flammable Properties	Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperature (> 150°C), when damaged or abused., mechanical damage or electrical overcharge. Burning cells can ignite other batteries in close proximity
Explosion Data	Extreme mechanical abuse will result in rupture of the batteries.
Protective Equipment for Firefighters	In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode
NFPA	Health: 0 Flammability: 1 Instability: 0

5 Accidental Release Measures

Personal Precautions

1	Remove personnel from area until dissipate
2	Use personal protective equipment. Avoid contact with skin and eyes.

Environmental Precautions

1	Prevent Further leakage or spillage if safe to do so
2	do not allow material to contaminate groundwater system
3	do not throw out into the environment

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Methods for material contamination cleanup

1	The leaked solid is moved to a container. The leaked place is fully flushed with water
2	Absorb spilled material with inert absorbent (dry sand or earth)
3	Collect all contaminated wash water and absorbent for proper disposal.

6 Accidental Release Measures

Precautions for Handling

Technical Measures	Prevention of user exposure; not necessary under normal circumstance
Prevention of fire and exposure	Not necessary under normal use. Do not damage or remove external shell
temperature	Never expose battery to fire or high temperature above 60 degrees celsius
Water	Do not soak battery in water or seawater
Oxidisers	Do not expose battery to strong oxidisers
Drop	Do not drop or a give mechanical shock. Never disassemble, modify or deform
Short Circuit	Do not connect positive and negative terminal with electrical conductive material

Precautions for Storage

1	Avoid direct sunlight, high temperatures and high humidity
2	store in a cool, dry place (temp: 20~45C, humidity: 45~85%)
3	Incompatible products: conductive material, water, seawater, strong oxidisers and acids.
4	Insulated packing material and tear proof, waterproof materials are recommended

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7 Exposure Controls/Personal protection

Engineering Controls

1	Use local exhaust ventilation or other engineering control sources used to manage dust, mist, fumes and vapors
2	Ensure that the eyewash stations and safety showers are closed to the workstation location.
3	Airborne exposure to hazardous substances are not expected when product is used for its intended purpose.

Personal Protection

Respiratory protection	Not necessary under normal conditions; wear safety respirator if handling an open or leaking cell
Eye protection	Not necessary under normal conditions; wear safety glasses if handling an open or leaking cell
Skin protection	Not necessary under normal conditions; wear neoprene or natural rubber gloves if handling an open or leaking cell
Hygiene Measures	Do not eat, drink or smoke in work areas

8 Stability and Reactivity

Stability	stable under proper operation and storage conditions
Conditions to avoid	fire, high temperatures. Do not disassemble, crush, short or install with correct polarity. Avoid mechanical or electrical abuse
Incompatible materials	seawater and other high conductivity liquids
Hazardous decomposition products	when overheated the battery may emit acid or harmful fumes

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9 Transport information

UN number	UN3480
UN shipping name	Lithium-ion Battery(LiFePO4 Battery)
Packing group	II
Marine pollutant	No
Land transport (ADR/RID)	Class 9
Sea transport (IMDG)	Class 9
Air transport (ICAO-TI/IATA DGR)	Class 9
National Regulations	This battery type is classified as dangerous goods for transport, because the watt-hour rating of the battery exceeds 100 Wh. We also declare that this battery type meets the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

10 Regulatory Information

Personal Protection

1	Recommended for transport of dangerous goods (TDG)
2	International Maritime Organization (IMO) International maritime dangerous goods code
3	International Air Transport Association Dangerous Goods Regulations (IATA-DGR)
4	International Civil Aviation Organization Technical Instructions on the Safe Transport of Dangerous Goods by Air (ICAO-TI)
5	Provision of the civil aviation administration of china on the administration of transport of dangerous goods by air.

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6	Recommendations for the transport of dangerous goods, the UN Manual of Tests and Criteria, Part III, Sub-section 38.3
7	Safety Code for inspection of packaging of dangerous goods transported by air (GB19433-2009)
8	Standard for transport of lithium batteries by air (MH/T 1020-2013)

11 Other Information

Disclaimer

The material safety data sheet is furnished to every manufacturer as a reference to secure the safe handling of chemical. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.