MATERIAL SAFETY DATA SHEET

1. Identification of the substance/preparation and of the company/undertaking

DATE: 03/29/2012

Identification of the product

Product name:	Lithium Iron Phosphate Cell ($LiFePO_4$ Cell)
Chemical System:	Lithium Iron Phosphate
Model:	Cylindrical Type Cells
Designated for 'RECHARGEABLE'?	X Yes __ No

Manufacturer/supplier identification

Company:	AA Portable Power Corp
Contact for information:	825 S 19th St #A, Richmond, CA, 94804, USA
Emergency telephone No.:	510-525-2328

2. Composition/information on ingredients

Ingredient	Content (percent of total weight)	CAS Index No.	EINECS
Lithium Iron Phosphate ($LiFePO_4$)	50%	15365-14-7	
Carbon(Graphite)	10%	7782-42-5	231-955-3
PP	5%	9003-07-0	NA
PVDF	2%	24937-79-9	NA
PE	5%	9002-88-4	NA
CMC	0.5%	9004-32-4	NA
LiPF6	5%	21342-40-3	244-334-7
EC	5%	96-49-1	202-510-0
DMC	5%	616-38-6	210-478-4
Ni	2.5%	7440-02-0	231-111-4
Cu	5%	7440-50-8	231-159-6
Al	5%	7429-90-5	231-072-3

3. Hazards identification

Intact batteries present no specific hazards. If batteries show signs of leaking, AVOID skin or eye contact with the material leaking from the battery. If battery is burning, put out the fire by using right extinguisher.

Potential Health Hazards:

Eye: No particular hazards for proper use. It will cause severe irritation or chemical burn when batteries are broken.

Skin:	No particular hazards for proper use. It will cause skin severe irritation by inhalation of EC and Routes of Entry: DMC or chemical burn when batteries are broken.
Inhalation:	It will irritate breath system by being exposed to fumes when batteries are broken.
Ingestion:	It is deleterious by swallowing battery. Broken batteries will cause severe chemical burn to mouth, esophagus and gastroenteric system
Environment hazards:	It will cause different harms to man and environment.
Burning and exploding hazards:	When the battery is short-circuited, over charged or over heated, it may cause electrolyte of the battery leaked out or the battery exploding.

4. First aid measures

Skin contact:	Wash the affected area for at least 15-30 minutes with clean water, and seek medical attention immediately.
Eye contact:	Wash the affected area with clean water, and seek medical attention immediately.
Inhalation:	Move to the drafty place, wash oral cavity and nasal cavity, and seek medical attention immediately.
Ingestion:	If the sufferer is conscious, feed him/her some water and milk, please not urge him/her to vomit, and seek medical attention immediately.

5. Fire-fighting measures

Hazard properties:	The battery may be over-heated by outside and interior short-circuit, and burning batteries may emit toxic fumes.
Hazardous Combustion products:	Metallic oxide, Carbon oxide (CO), Carbon dioxide (CO2), etc.
Extinguishing Media:	Species D fire extinguishers of chemical dry powder, yellow sands. Do not use water.
Firemen safeguard:	Firemen should wear fire-fighting suits with a self-contained breathing apparatus

6. Accidental release measures

General information:	Employ proper protection establishment according to directions of part.8.
Splash/leakage:	Remove the source of fire and heat. Collect the leaked battery and place it into appropriate vessel for reclaiming and discarding according to correlative native and local laws, regulations and environmental protection requirements. Avoid vibration and physical damage. Isolate irrelative personals.

7. Handling and storage

Handling:	— Do not vibrate the battery excessively. — Avoid short-circuiting the battery. Though short-circuit for little time will not influence badly the battery, short-circuit for long time will lose the battery's energy and bring plenty of heat which will burn skin and cause

Storage:	fire or explosion indeed. — The equipments of metal which are used for battery pack such as coin, metal accouterments, metal worktable, metal strip, etc. are source of short-circuit. — It should be provide with effective measures to prevent short-circuit during transportation and storage. — Do not disassemble and damage the battery. — The battery should be transported with 10-50% charged states. — Do not contact the battery with water. — Do not store the battery in the place with point-blank sunshine. — The battery should be 40-60% charged for long time storage. — The battery should be stored in the place where is cool, dry and lee. — High temperature may cause the battery capability loss, leakage and rustiness. — Do not expose the battery to fire. — Store the battery away from moisture.

8. Exposure controls/personal protection

Engineering control:	No information available.
Sanitation measure:	No special requirements for handling the battery well packed.
Respiration protection:	No special requirements for handling the battery well packed.
Eye protection:	No special requirements for handling the battery well packed.
Body protection:	No special requirements for handling the battery well packed.

9. Physical and chemical properties

Appearance and character: Solid

Color: Metal white

Odor: No

Voltage: 2.0 — 36 V

Weight:10 — 400g

capacity:40 — 4000 mAh

Function: Power supply

10. Stability and reactivity

Stability:	Stable for normal usage.
Incompatibility (Materials to avoid):	Electric materials, water, seawater, oxidant, acid.
Conditions to Avoid:	Short-circuit, collision, refit, high temperature (over 100’C), point-blank sunshine and high humidity environment.
Decomposition products:	Toxic gas brought when burning.
Hazardous polymerization:	Not occur.

11. Toxicological information

CAS NO.	RETCS
15365-14-7	None list
7782-42-5	MD9659600
9003-07-0	UD1842000
24937-79-9	None listed
9002-88-4	TQ3325000; KX3270000
9004-32-4	FJ5950000
21342-40-3	None listed
96-49-1	FF9550000
616-38-6	FG0450000
7440-02-0	QR5950000; QR6126100; QR6555000; QR7120000
7440-50-8	GL5325000; GL7440000; GL7590000
7429-90-5	BD0330000; BD1020000

Acute toxicity:

Ingredients: hydroxide methyl cellulose sodium

— LC50: >5800 mg/m3/4h（small rat, inhalation）

— LD50:>27 g/kgs（Small rat, to eat）

Ingredients: LiPF6

— LD50: >1702 mg/kg（big rat, by mouth）

Ingredients: Ethylene carbonate

— LD50: >10000 mg/kg（big rat, by mouth）

— LD50: >3000 mg/kg (rabbit, by skin)

Ingredients: Dimethyl carbonate

— LD50: >6000 mg/kg（small rat, by mouth）

— LD50: >13000 mg/kg（big rat, by mouth）

Irritation: NA

Carcinogenicity:

Ingredients: nickel

— LARC-2B: potential carcinogen

— ACGIH A5:non-human carcinogen

Other substances: not be listed under ACGIH, IARC, NTP.

12. Ecological information

Ecological toxicity:	The chemicals of the battery will cause harm to the environments if it is discarded to the surroundings.
Biodegradability:	No information available.
Non- biodegradability:	No information available.

13. Disposal considerations

Disposal means: according to correlative national and local laws and regulations.

14. Transport information

According to the regulations of IATA DGR, UN: 3480, Cargo by air, Category 11, Packing instruction 965
According to the regulations of IMDG CODE, UN: 3480, Class 9, Cargo by sea, Category 2, Special provisions 188, 230, 310, 957.

15. Regulatory information

The regulations following are specifically applied to the safe usage, production, storage, transport and load and unload for dangerous chemicals.

— The Regulations of Safe Management Regarding Dangerous Chemicals (issued by State Council at Jan. 26, 2002).
— The Rules of implementation of Safe Statute Regarding Dangerous Chemicals (No.667, 1992).
— The Regulations of Safe Use of Dangerous Chemicals in Workplace (No.423, 1992).

16. Other information

Make people:	Professional post: R&D Engineer	Name (sign) : Sophia Cui
Make unit:	Name: R&D Department	Phone: 510-525-2328
	Address: R&D Dept., Richmond USA Plant.,	

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