MATERIAL SAFETY DATA SHEET
&
IATA T1 –T8 CERTIFICATE

Model(s): AM048-040

Version 1.0

Sep. 17, 2008

Amita Technologies, Inc.

Document Review Team

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1. MANAFACTURER

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Contact Person	Ms. Veronique Kuei
CHEMTREC (Transportation Emergency in USA)	+1-800-424-9300 (24 hours in USA) +1-703-527-3887

2. PRODUCT

Product Category	Lithium Ion Polymer Rechargeable Battery Pack
Model(s)	AM048040
Capacity	40 Ah
Voltage	49V
Chemical System	Lithium Manganese/ Graphite
Appearance	Battery Pack with an aluminum housing
Designed for Recharge	Yes
Classification	Amita declares that the aggregate equivalent lithium content is more than 8 grams. Thus, it is considered as a "dangerous" product and should be transported per dangerous goods class 9 regulations.

3. COMPOSITION

Positive electrode: Lithium Manganese Oxide	25.4 wt%
Negative electrode: Graphite	14.2 wt%
Electrolyte: Organic electrolyte mainly composed of alkyl carbonate	12.0 wt%
Weight of aggregated Lithium contents or aggregated lithium equivalent contents per cell	No more than 1.5 g
Weight of aggregated Lithium contents or aggregated lithium equivalent contents per battery	More than 8 g

Cadmium、Lead、Mercury、Hexavalent Chromium、PBB & PBDE (RoHS Directive)	Fully compliant with RoHS

4. DANGEROUS GOODS CLASSIFICATION STATUS

According to the 48th Edition of the IATA Dangerous Goods Regulations effective January 2007, transporting a lithium ion battery is not subject to Dangerous Goods Regulations if the total aggregate equivalent lithium content of a single battery (or a cell) is no more than 8 grams (or 1.5 grams). In other words, "A Lithium Ion battery (or cell) of which the aggregate equivalent lithium content is under 8 grams (or 1.5 grams) is considered "not dangerous" and can be transported on aircrafts".

A simple rule of thumb is that “the aggregate equivalent lithium content = single cell capacity (in Ah) x 0.3 (grams) x total number of cells used.”

For examples:

Models	Total Lithium Content (in grams)	Remarks
AM048040	= 4.95Ah x 0.3 g x 104 = 154.44 g	DANGEROUS GOODS

Amita declares that the aggregate equivalent lithium content of a single battery, model AM048040, is more than 8 grams. Thus, it is considered as a "dangerous" product and should be transported per dangerous goods class 9 regulations.

5. HAZARDOUS AND TOXICITY CLASS

Class Name	Not applicable for regulated class
Hazard	It may cause heat generation or electrolyte leakage if battery terminals contact with other metal. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
Toxicity	Vapor generated from burning batteries, may make eyes, skin and throat irritate.

6. FIRST AID MEASURES

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye Contact	Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.

Skin Contact	Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation	Content of an opened battery can cause respiratory irritation. Provide fresh air and get a medical treatment immediately.

7. FIRE FIGHTING MEASURES

Extinguishing Method	Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
Fire Extinguishing Agent	Dry chemical, alcohol-resistant foam, carbon dioxide and plenty of water are effective.

8. MEASURES FOR ELECTROLYTE LEAKAGE FROM THE BATTERY PACK

Take up with absorbent cloth.
Move the battery away from the fire

9. HANDLING AND STORAGE

When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
Do not let water penetrate into packaging boxes during their storage and transportation.
The batteries will be stored at room temperature, charged to about 30~50% of capacity.
Do not store the batteries in places of the high temperature exceeding 35 degree C or under direct sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, water drop or not to store it under frozen condition.
Please avoid storing the battery in the places where it is exposed to the static electricity. It may cause the protection circuit to be damaged.

10. EXPOSURE CONTROL

Acceptable Concentration	Not specified in ACGIH.
Facilities	Provide appropriate ventilation system such as local ventilator in the storage place.
Protective Clothing	Gas mask for organic gases, safety goggle, safety glove.

11. STABILITY AND REACTIVITY

Since batteries utilize a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

12. TOXICOLOGICAL INFORMATION

Acute toxicity	Oral (rat) LD50>2g/kg (estimated)
Irritation	Irritating to eyes and skin.
Chronic Toxicity	Not specified

13. ECOLOGICAL INFORMATION

When properly used or disposed, this product do not present environmental hazard.

14. DISPOSAL CONSIDERATIONS (PRECAUTION FOR RECYCLING)

When the battery is worn out, dispose of it under the ordinance of each local government or the low issued by relating government. Disposal of the worn-out battery may be subjected to Collection and Recycling Regulation.

15. TRANSPORT INFORMATION

The following are transportation requirements:

All lithium, lithium ion and lithium polymer cells and batteries must be tested in accordance with the “UN Manual of Tests and Criteria, Part III, Subsection 38.3 (Test T1-T8) November 1, 2006.
According to the 48th Edition of the IATA Dangerous Goods Regulations effective January 2007, even if a product’s Lithium Ion content exceeds 8g but is less than 25g, and the product passed the United Nations recommended T1 – T8 tests, they will be considered "hazardous" and will require "CLASS 9- Transportation of dangerous goods".
The CLASS 9 transportation requires a declaration of dangerous goods, the use of a specific certified level II package (1.2m incursion, etc.), and a certified indication of CLASS 9 outside the box
Each package containing more than 24 cells or 12 batteries must: (1) Each package must be marked indicating that it contains lithium-ion batteries and that special procedures should be followed in the event that package is damaged. (2) Each shipment must be accompanied with a document indicating that the packages contain

lithium-ion batteries and special procedures should be followed in the event a package is damaged.

(3) Each package is capable of withstanding 1.2 m drop test in any orientation without damage to batteries contained therein, without shifting of the contents so as to allow battery-to-battery contact and without release of the package contents. And except in the case of lithium-ion batteries packed with equipment, packages may not exceed 30kg (gross weight).

(4) During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.

(5) During the transportation do not allow packages to be fallen down or damaged.

(6) For shipping, batteries may be in a less than 50% charged state (SOC).

(7) A consumer should save the original shipping box and packing material, as it constitutes an approved shipping container for the Battery.

(8) A consumer should save the original documentation from the Battery, including "Shipper's Declaration for Dangerous Goods", labels, etc., as this will help when completing documentation for future shipments.

(9) If package is damaged, batteries must be quarantined, inspected and repacked.

(10) For emergency information, call CHEMTREC at (800) 424-9300 or (703) 527-3887 in USA.

Carry-On Baggage:

A consumer can carry spare lithium batteries in their carry-on baggage but they cannot carry them in checked baggage. If your battery contains between 8 and 25 grams of equivalent lithium you can carry a maximum of **two** of these batteries in your carry-on luggage.

Amita declares that the aggregate equivalent lithium content of a single battery, model AM048040, is more than 8 grams. Thus, it is considered as a "dangerous" product and should be transported per dangerous goods class 9 regulations.

16. REGULATORY INFORMATION

The international regulations on air transportation of rechargeable Lithium Ion batteries (commercial and cargo) are governed mainly by the following regulations

International Conventions	* Air - IATA (International Air Transport Association) Dangerous Goods Regulations(DGR) 48th Edition Effective January 2007. * Air - ICAO (International Civil Aviation Organization) Technical Instructions for the safe transport of dangerous goods by air. * Sea – IMDG (International Maritime Dangerous Goods) regulations

	* Land – ADR (road), RID (rail) United Nations “Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, Subsection 38.3, (Tests T1-T8), November 1, 2006. United Nations “Recommendations on the Transport of Dangerous Goods, Model Regulations –Dec. 2006, Ref. ST/SG/AC.10/34/Add.1” United Nations “Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria Dec. 2006 – Ref. ST/SG/AC.10/34/Add.2“
USA	* Code of Federal Regulations (49CFR Ch. 1 & 173 -185) Both IATA and ICAO Special Provision A45 and IMO Special Provision 188, are identical to the requirements of

17. DISCLAIMER

The application of the regulations can vary according to the aviation company, Amita Technologies, therefore, highly recommends that you consult with the aviation company prior to transporting battery or cell. This information has been compiled from sources considered to be reliable and to the best of our knowledge, accurate and reliable. However, Amita Technologies does not accept liability for any loss or damage that may occur, direct or indirect, from using this information.

18. IATA T1–T8 CERTIFICATE

According to the 48th Edition of the IATA Dangerous Goods Regulations effective January 2007, all lithium ion and/or lithium polymer cells and batteries must be tested in accordance with the “UN Manual of Tests and Criteria, Part III, Subsection 38.3 (Test T1-T8) November 1, 2006”.

We, Amita Technologies, Inc, certified that the model(s) listed in this document comply with T1 to T8 test as required by the IATA.

Lithium Ion Polymer Rechargeable Cell/Battery Manufacturer:	Amita Technologies, Inc.
Lithium Ion Polymer Rechargeable Cell/Battery Model(s):	AM048040

No.	Test Items	Results	
T1	Altitude Simulation	Yes Pass	☐Fail
T2	Thermal Test	Yes Pass	☐Fail
T3	Vibration	Yes Pass	☐Fail
T4	Shock	Yes Pass	☐Fail
T5	External Short Circuit	Yes Pass	☐Fail
T6	Impact (For cell only)	Yes Pass	☐Fail
T7	Overcharge (For battery only)	Yes Pass	☐Fail
T8	Forced Discharge (For cell only)	Yes Pass	☐Fail