NARADA POLYMER LITHIUM ION BATTERY SAFETY DATA SHEET

Document Number: Narada-NL503759 Revision:01 page 1 of 5	
IDENTITY(As Used on Label and List) Model No: NL503759 Product Name: Secondary (Rechargeable) 3.7V 4.07wh Polymer Li-ion Battery	Note: Blank spaces are not permitted if any item is not applicable or no information is available, the space must be marked to indicate that

Section I

Manufacturer's Name: Zhejiang Narada Power Source Co., Ltd.	Emergency Telephone Number +86-571- 56975900
Address(Number , Street, City State, and ZIP Code) 9/F,Building A,No.50,zijinghua Road,Hangzhou,Zhejiang,China. 310012	Telephone Number for information +86-571- 56975958
	Date of prepared and revision, Oct. 28th. 2015

Section II-Hazardous Ingredients /Identity Information

Hazardous Components:

Description:

None of the ingredients in this product is considered to be hazardous by OSHA

(as defined in the OSHA Hazard Communication Standard 29 CFR 1910)

Chemical Name	CAS No	Approximate % of total weight
lithium iron phosphate	12057-17-9	~23.3
Carbon	7782-42-5	~17.6
PVDF	24937-79-9	~1.0
LiPF6	21324-40-3	~11.8
N-methyl-2-pyrrolidone	872-50-4	~20.0
Al Metal	7429-90-5	~5.0
Cu Metal	7440-50-8	~9.0
PP	9022-88-4/ 9003-07-0	~5.0
1-butanol	71-36-3	~0.3

UN Class: Even classified as lithium ion batteries(UN3481),2015 IATA Dangerous Goods regulations 56th edition Packing Instruction 966 Section Ⅱapplied. The product is handled as Non-dangerous Goods by meeting the following requirements.

Lithium ion cells and batteries offered for transport are not subject to other additional requirements of These Regulations if they meet the requirements in Section Ⅱ.Lithium batteries identified by the Manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).

Lithium ion cells and batteries may be offered for transport if they meet the following:

1. For cells, the Watt-hour rating is not mort than 20Wh.

2. For batteries, the Watt-hour rating is not more than 100Wh.

The Watt-hour rating must be marked on outside of the battery case except those manufactured before 1 January 2015 may be transported without this marking until 31 December 2016.

3.Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of

NARADA POLYMER LITHIUM ION BATTERY SAFETY DATA SHEET

Test and Criteria Part III subsection 38.3.

And they are out of scope for Special Provision A154 and comply with Special Provision A164.(3)

Section III – Physical / Chemical Characteristics

Boiling Point N.A.	Specific Gravity (H_2O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point NA.
Vapor Density (AIR=1) N.A.	Evaporation Rate(Butyl Acctatc) N.A.

solubility in Water

Insoluble

Appearance and Odor Prismatic Shape, odorless

Section IV – Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam Extinguishers

Special Fire Fighting Procedures N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire or heater –may explode..

Do not attempt to disassemble or modify the battery in any way –may cause burns.

Do not short-circuit battery – may cause burns.

Do not use any chargers other than those recommended by Narada-may explode

Section V – Reactivity Data

This material is stable and non-reactive with most materials

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

N.A

Hazardous Polymerization	May Occur		Conditions to Avoid Heating, , mechanical and electrical abuse
	Will Not Occur	X	

Section VI – Health Hazard Data

Route(s) of Entry:	Inhalation	Yes
	Skin	Yes
	Ingestion	Yes

Health Hazard (Acute and chronic) /Toxicological information These chemicals are contained in a sealed coat. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when the gas release vent works. Organic solvent has slight toxicity and can irritate skin and eyes. Lithium salt is irritating to skin, eyes and mucous membranes and should be avoided.

NARADA POLYMER LITHIUM ION BATTERY SAFETY DATA SHEET

Carcinogenicity:

NTP: No IARC Monograph: No OSHA Regulated: No

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition

This product is not expected to cause acute or chronic toxicity or skin/eye irritating

Section VII-First Aid Measures

First Aid Procedures

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

Ingestion- Not toxic per tests with laboratory animals(rats)

Skin contact- Remove contaminated cloths and rinse skin with plenty of water or shower for 15 minutes. If irritation persists, get medical aid

Eye contact- Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, get medical aid

Section VIII –Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Pick up and place in appropriate container

Section IX – Handling and Storage

Safe handling advice

Batteries should be handled and stored carefully to avoid short circuits

Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never Disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically Conductive material. In the case of charging, use only dedicated charger.

storage advice :

Storage conditions: Avoid direct sunlight, high temperature, high humidity, Store in cool place.

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids packing material.

Section X – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP	STEP
N.A.	N.A.

Respiratory Protection (Specify Type)

Not necessary under conditions of normal use

Ventilation	Local Exhausts	Special
	Not necessary under conditions of normal use	N.A.
	Mechanical (General)	Other
	Not necessary under conditions of normal use	N.A.

NARADA POLYMER LITHIUM ION BATTERY SAFETY DATA SHEET

Protective Gloves Not necessary under conditions of normal use	Eye Protection Not necessary under conditions of normal use

Other Protective Clothing or Equipment

Not necessary under conditions of normal use

Work / Hygienic Practices

N.A.

Section XI- Ecological Information

When promptly used or disposed the batter does not present environmental hazard

When disposed, keep away from water ,rain and snow

Section XII – Disposal Method

This product may be disposed in a municipal landfill

Section XIII –Transportation Information

• Even classified as lithium ion batteries (UN3480), 2015 IATA Dangerous Goods Regulations 56st edition Packing Instruction 966

Section Ⅱ applied. The product is handled as Non-Dangerous Good by meeting the following requirements.(1)

• 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 be exposed to condensation.

• During the transportation do not allow packages to be fallen down or damaged.

• Lithium ion batteries identified by manufacturer as being defective for safety reasons, or that have been damaged, that have the

potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the

Manufacturer for safety reasons).

• Except when installed in equipment , for air shipment that contain one or more cells or batteries, they are necessary to meet the

Following items.

1. Each consignment must be accompanied with a document such as air waybill with an indication that:

• The package contains lithium ion cells or batteries.

• The package must be handled with care and that a flammability hazard exists if the package is damaged;

• Special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary ;

And the telephone number for additional information.

2. Each package must be labeled with a lithium battery handling label.

• the width 120mm ,length 110mm sized lithium battery handling label must be labeled onto the side of

a package without bending it.

3. Each package must be capable of withstanding a 1.2m drop test in any orientation

Ⅰ Damage to cells or batteries contained therein;

Ⅱ Shifting of the contents so as to allow battery to battery to battery (or cell to cell)contact;

Ⅲ Releaser of contents.

4. Quantity per package shall not exceed 10kg.

5. Each package containing more than four cells or more than two batteries installed in equipment must be complied with above

1 and 2.

The rechargeable Lithium-Ion battery pack as stated in Appendix made in compliance to the requirement stated in the latest edition of

NARADA POLYMER LITHIUM ION BATTERY SAFETY DATA SHEET

the IATA Dangerous Goods Regulations Packing Instruction 965 Part 1 such that they can be transported as a NOT RESTRICTED (non-hazardous/non-dangerous)goods; However, if those lithium-ion battery packs are pack with or contained in an equipment, then it is the Responsibility of the shipper to ensure that the consignment are packed in compliance to the latest edition of the IATA Dangerous Goods.

Regulations Section Ⅱ of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (Non-hazardous/non-Dangerous).

Section XVI – Regulatory Information

Note: This regulatory information included here should not necessarily all inclusive. None of the ingredients in this product are subjected to be reporting requirements of the CERCLA, the Clean Air Act and Clean Water Act (US). This product is not formulated with, nor do the manufacturing or formulation processes utilize an Class I or II Ozone depleting substances

Section XV– Other Information

The recommendations and information contained in this MSDS have been compiled from Sources believed to represent the most current information available when the MSDS was Prepared. However, the manufacturer/distributor of this product provides any warranty. Guaranty or representation as to the correctness or sufficiency of this information. If this product is to be used in large amounts and /or an unusual manner, the user is obliged to determine what safety measures are appropriate, including the applicable and relevant workplace and environmental regulations pertaining to handling, use and disposal.

Section XVI – Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.