



## Design Report of Safety Data Sheet

Report No.: DG2047964E

Date: 2020/05/22

Name of the sample	Residential AC storage system (containing lithium ion battery: V047-0001AA 9P28S 101.36V 3.15kWh and button battery: BR2032 3V 195mAh) BX6.3__AC100		
Applicant	DELTA ELECTRONICS (JIANGSU) LIMITED		
Supplier	DELTA ELECTRONICS (JIANGSU) LIMITED		
Composition of the sample	Various lithium metal oxides: 20~30%; Carbon: 10~20%; Ethylene carbonate: 15~20%; Lithium hexafluorophosphate(1-); Ethylene carbonate; Dimethyl carbonate; Ethyl methyl carbonate		
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition		
Design Result of SDS please see next page.			
Designer	华雯	Approver	王红松



Notes: This SDS is valid before the implementation of the ninth revised edition GHS.



# SAFETY DATA SHEET

**Residential AC storage system (containing lithium ion battery:V047-0001AA 9P28S 101.36V 3.15kWh and button battery:BR2032 3V 195mAh) BX6.3\_AC100**

# SDS

**DELTA ELECTRONICS (JIANGSU) LIMITED**

- According to GHS (Eighth Revised Edition)

## Section 1 Product and Company Identification

### > Product Identifier

**Product Name** Residential AC storage system (containing lithium ion battery:V047-0001AA 9P28S 101.36V 3.15kWh and button battery:BR2032 3V 195mAh) BX6.3\_AC100

**Synonyms** -

### > Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

**Relevant Identified Uses** Please consult manufacturer.

**Uses Advised Against** Please consult manufacturer.

### > Details of the Supplier of the Safety Data Sheet

**Applicant Name** DELTA ELECTRONICS (JIANGSU) LIMITED

**Application Address** NO.1688 JIANGXING EAST ROAD, WUJIANG ECONOMIC DEVELOPMENT ZONE, WUJIANG, JIANGSU

**Applicant Post Code** 215200

**Applicant Telephone** +86-512-63406008

**Applicant Fax** —

**Applicant E-mail** eva.hou@deltaww.com.cn

**Supplier Name** DELTA ELECTRONICS (JIANGSU) LIMITED

**Supplier Address** NO.1688 JIANGXING EAST ROAD, WUJIANG ECONOMIC DEVELOPMENT ZONE, WUJIANG, JIANGSU

**Supplier Post Code** 215200

**Supplier Telephone** +86-512-63406008

**Supplier Fax** —

**Supplier E-mail** eva.hou@deltaww.com.cn

**Importer Name** Delta Electronics Australia Pty Ltd

**Importer Address** Unit 20-21/45 Normanby Road, Notting Hill, VIC 3168, Australia

**Importer Telephone** +61 3 9543 3720

**Importer Emergency Phone Number** +61 3 9543 3720

### > Emergency Phone Number

**Emergency Phone** +86-512-63406008-5630



Number

## Section 2 Hazards Identification

**Hazard class and label elements of the product according to GHS (the eighth revised edition):**

**> GHS Hazard Class**

This product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar definition, are outside the scope of the system. [Rev.8 (2019) Part 1.3.2.1.1]

**> GHS Label Elements**

**Pictogram** Not applicable

**Signal Word** Not applicable

**> Hazard Statements**

Not applicable

**> Precautionary Statements**

**Prevention**

Do not open or disassemble.  
Do not expose to high temperatures or open fire.  
Do not mix with batteries of varying sizes, chemistries or types.  
Avoid using external impact battery.

**Response**

Not applicable

**Storage**

Store under roof in cool, dry, well-ventilated areas.

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

## Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Various lithium metal oxides	20~30	346417-97-8	-
Carbon	10~20	7782-42-5	231-955-3
Ethylene carbonate	15~20	-	-
Lithium hexafluorophosphate(1-)	Commercial secrets	21324-40-3	244-334-7
Ethylene carbonate	Commercial secrets	96-49-1	202-510-0
Dimethyl carbonate	Commercial secrets	616-38-6	210-478-4

Ethyl methyl carbonate

Commercial secrets

623-53-0

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## Section 4 First Aid Measures

### > Description of First Aid Measures

<b>General Advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye Contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Skin Contact</b>	Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
<b>Inhalation</b>	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
<b>Protecting of First-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

### > Most Important Symptoms and Effects, both Acute and Delayed

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

### > Indication of Any Immediate Medical Attention and Special Treatment Needed

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

## Section 5 Fire Fighting Measures

### > Extinguishing Media

<b>Suitable Extinguishing Media</b>	Dry chemical, carbon dioxide or alcohol-resistant foam.
<b>Unsuitable Extinguishing Media</b>	Do not use a solid water stream as it may scatter or spread fire.

### > Specific Hazards Arising from the Substance or Mixture

- 1 Containers may explode when heated.
- 2 Fire exposed containers may vent contents through pressure relief valves.
- 3 May expansion or decompose explosively when heated or involved in fire.

### > Advice for Firefighters

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent)and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Section 6 Accidental Release Measure

### > Personal Precautions, Protective Equipment and Emergency Procedures

- 1 Ensure adequate ventilation. Remove all sources of ignition.



- 2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

**> Environmental Precautions**

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

**> Methods and Materials for Containment and Cleaning Up**

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

**Section 7 Handling and Storage**

**> Precautions for Handling**

- 1 Handling is performed in a well ventilated place.
- 2 Wear suitable protective equipment.
- 3 Avoid contact with skin and eyes.
- 4 Keep away from heat/sparks/open flames/ hot surfaces.
- 5 Take precautionary measures against static discharges.

**> Precautions for Storage**

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

**Section 8 Exposure Controls/Personal Protection**

**> Control Parameters**

**Occupational Exposure Limit Values**

Component	Country/Region	Limit Value - Eight Hours		Limit Value - Short Term	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Carbon 7782-42-5	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-

**Biological Limit Values**

Component	Source	Biological monitoring index	Biological limits value	Sampling time	remark

Lithium hexafluorophosphate(1-)	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	
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**Monitoring Methods**

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

**> Engineering Controls**

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

**> Personal Protection Equipment**

- Eye Protection** Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
- Hand Protection** Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.
- Respiratory protection** If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
- Skin and Body Protection** Wear fire/flame resistant/retardant clothing and antistatic boots.

**Section 9 Physical and Chemical Properties**

- Appearance:** Lithium-ion batteries, individually packaged, containing 2 lithium ion batteries and 1 button battery. **Odor:** No information available
- Odor Threshold:** No information available **pH:** No information available
- Melting Point/Freezing Point (°C):** No information available **Initial Boiling Point and Boiling Range (°C):** No information available
- Flash Point (°C)( Closed Cup):** Not applicable **Evaporation Rate:** Not applicable
- Flammability:** No information available **Upper/lower explosive limits[%(v/v)]:** Upper limit: No information available; Lower limit: No information available
- Vapor Pressure (KPa):** Not applicable **Relative Vapour Density(Air = 1):** Not applicable
- Relative Density(Water=1):** No information available **Solubility:** No information available
- n-Octanol/Water Partition Coefficient:** No information available **Auto-Ignition Temperature(°C):** No information available
- Decomposition Temperature (°C):** No information available **Kinematic Viscosity (mm<sup>2</sup>/s):** Not applicable
- Particle characteristics:** No information available

**Section 10 Stability and Reactivity**

- Reactivity** Contact with incompatible substances can cause decomposition or other chemical reactions.
- Chemical Stability** Stable under proper operation and storage conditions.



<b>Possibility of Hazardous Reactions</b>	Mixtures with metallic acetylene, when heated, cause a fire or incandescence.
<b>Conditions to Avoid</b>	Incompatible materials, heat, flame and spark.
<b>Incompatible Materials</b>	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid.
<b>Hazardous Decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11 Toxicological Information

### > Acute Toxicity

Component	CAS No.	LD <sub>50</sub> (Oral)	LD <sub>50</sub> (Dermal)	LC <sub>50</sub> (Inhalation, 4h)
Dimethyl carbonate	616-38-6	13000mg/kg(Rat)	> 5000mg/kg(Rabbit)	No information available
Ethylene carbonate	96-49-1	10000mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available

### > Skin Corrosion/Irritation

No information available

### > Serious Eye Damage/Irritation

No information available

### > Skin Sensitization

No information available

### > Respiratory Sensitization

No information available

### > Germ Cell Mutagenicity

No information available

### > Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	346417-97-8	Various lithium metal oxides	Not Listed	Not Listed
2	7782-42-5	Carbon	Not Listed	Not Listed
3	-	Ethylene carbonate	Not Listed	Not Listed
4	21324-40-3	Lithium hexafluorophosphate(1-)	Not Listed	Not Listed

5	96-49-1	Ethylene carbonate	Not Listed	Not Listed
6	616-38-6	Dimethyl carbonate	Not Listed	Not Listed
7	623-53-0	Ethyl methyl carbonate	Not Listed	Not Listed

> **Reproductive Toxicity**

No information available

> **Reproductive Toxicity (Additional)**

No information available

> **STOT-Single Exposure**

No information available

> **STOT-Repeated Exposure**

No information available

> **Aspiration Hazard**

No information available

## Section 12 Ecological Information

> **Acute Aquatic Toxicity**

Component	CAS No.	Fish	Crustaceans	Algae
Ethylene carbonate	-	LC <sub>50</sub> : 0.665mg/L (96h)(Fish)	EC <sub>50</sub> : 0.02mg/L (48h)	ErC <sub>50</sub> : 7.9mg/L (96h)

> **Chronic Aquatic Toxicity**

No information available

> **Others**

**Persistence and Degradability**  
**Bioaccumulative Potential**  
**Mobility in Soil**

No information available

No information available

No information available

**Results of PBT and vPvB Assessment**

Various lithium metal oxides does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.  
 Carbon does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.  
 Lithium hexafluorophosphate(1-) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.  
 Ethylene carbonate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.  
 Dimethyl carbonate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.  
 Ethyl methyl carbonate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.



### Section 13 Disposal Considerations

**Waste Chemicals** Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.

**Contaminated Packaging Disposal Recommendations** Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. Refer to section 13.1 and 13.2.

### Section 14 Transport Information

**Transporting Label** 

**Marine pollutant** None

**UN Number** 3480

**UN Proper Shipping Name** LITHIUM ION BATTERIES(including lithium ion polymer batteries)

**Transport Hazard Class** 9

**Transport Subsidiary Hazard Class** NONE

**Packing Group** Packagings shall conform to the packing group II performance level

### Section 15 Regulatory Information

**> International Chemical Inventory**

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Various lithium metal oxides	x	x	x	x	x	x	x	x	x
Carbon	√	√	√	√	√	√	√	√	x
Ethylene carbonate	x	x	x	x	x	x	x	x	x
Lithium hexafluorophosphate(1-)	√	√	x	√	x	√	√	√	x
Ethylene carbonate	√	√	√	√	√	√	√	√	√
Dimethyl carbonate	√	√	√	√	√	√	√	√	√
Ethyl methyl carbonate	x	√	x	√	x	√	√	x	x

- [EINECS]** European Inventory of Existing Commercial Chemical Substances.
- [TSCA]** United States Toxic Substances Control Act Inventory.
- [DSL]** Canadian Domestic Substances List.
- [IECSC]** China Inventory of Existing Chemical Substances.
- [NZIoC]** New Zealand Inventory of Chemicals.
- [PICCS]** Philippines Inventory of Chemicals and Chemical Substances.

[KECI] Existing and Evaluated Chemical Substances.  
[AICS] Australia Inventory of Chemical Substances.  
[ENCS] Existing And New Chemical Substances.

Note

"√" Indicates that the substance included in the regulations  
"×" That no data or included in the regulations

## Section 16 Additional Information

**Creation Date** 2020/05/22  
**Revision Date** 2020/05/22  
**Reason for Revision** -

### > Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. 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.





## Terms of the Using of the Report

1. The report is issued by DPTC according to the information of the chemicals and the information of its shipping provided by the applicant (shipper or his agent).
2. According to the demand of this SDS, DPTC requires the applicant to provide true and exact sample and data.
3. Information from applicant is the key of this Label, so the center will not respond for the wrong of applicant.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by DPTC.
6. Our center guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
7. The partly duplicating of this report is prohibited without the written approver of DPTC.
8. The report is invalid when anything of the following happens-illegal transfer, embezzlement, imposture, modification or tampering in any media form.
9. The authenticity of the certificate can be checked by scanning the QR code of this certificate.

