



Design Report of Safety Data Sheet

Report No.: DG1844585E

Date: 2018/05/02

Name of the sample	Battery box(with battery) BX_6.0 (containing lithium ion battery: BJ-DCB05ZKAC/BJ-DCB05ZKAH 46.8V/3.0kWh; button battery: BR2032 3V 195mAh)		
Applicant	DELTA ELECTRONICS (JIANGSU) LIMITED		
Supplier	DELTA ELECTRONICS (JIANGSU) LIMITED		
Composition of the sample	Lithium transition material oxidate: 20~60%; Aluminium: 1~10%; Carbon: 10~30%; Copper: 1~15%; Organic electrolyte principally involves ester carbonate: 5~15%; Outer case: 1~30%		
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Seventh revised edition		
Design Result of SDS please see next page.			
Designer	华雯	Approver	王红松

1. This SDS is valid before the implementation of the eighth revised edition GHS.
2. Information from applicant is key of this SDS, so the center will not respond for the wrong of applicant.

注 1: 除非特别说明,本报告中数据仅对检测样品负责。

UNLESS OTHERWISE STATED, THE RESULTS SHOWN IN THIS TEST REPORT REFER ONLY TO THE SAMPLE(S) TESTED.

注 2: 未经本中心许可, 本报告不得部分复制。

THIS TEST REPORT CAN NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT PRIOR WRITEN PERMISSION OF THE CENTER.

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SAFETY DATA SHEET

Battery box(with battery) BX_6.0
(containing lithium ion battery:
BJ-DCB05ZKAC/BJ-DCB05ZKAH
46.8V/3.0kWh; button battery: BR2032
3V 195mAh)

SDS

DELTA ELECTRONICS (JIANGSU) LIMITED

- According to GHS (Seventh Revised Edition)

Section 1 Product and Company Identification

> Product Identifier

Product Name	Battery box(with battery) BX_6.0 (containing lithium ion battery: BJ-DCB05ZKAC/BJ-DCB05ZKAH 46.8V/3.0kWh; button battery: BR2032 3V 195mAh)
Synonyms	-
CAS No.	-
EC No.	-
Molecular Formula	-

> 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 EAST JIANGXING ROAD, WUJIANG ECONOMIC DEVELOPMENT ZONE, SUZHOU CITY
Applicant Post Code	215209
Applicant Telephone	+86-512-63406008
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Supplier Name	DELTA ELECTRONICS (JIANGSU) LIMITED
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Supplier Post Code	215209
Supplier Telephone	+86-512-63406008
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Supplier E-mail	eva.hou@deltaww.com.cn

> **Emergency Phone Number**

Emergency Phone Number +86-512-63406008

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the seventh 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. 6 (2015) 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.
Lithium transition material oxidate	20~60	-	-
Aluminium	1~10	7429-90-5	231-072-3
Carbon	10~30	64365-11-3	264-846-4
Copper	1~15	7440-50-8	231-159-6
Organic electrolyte principally involves ester	5~15	-	-

carbonate

Outer case

1~30

-

-

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin Contact	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.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	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.
Protecting of First-aiders	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

Suitable Extinguishing Media	Dry chemical, carbon dioxide or alcohol-resistant foam.
Unsuitable Extinguishing Media	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 ³	ppm	mg/m ³
Aluminium 7429-90-5	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-
Copper 7440-50-8	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-

Battery box(with battery) BX_6.0 (containing lithium ion battery: BJ-DCB05ZKAC/BJ-DCB05ZKAH

46.8V/3.0kWh; button battery: BR2032 3V 195mAh)

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	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02

Biological Limit Values

No information available

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 160.1~GBZ/T 160.81-2004 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/flare resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance: Containing lithium ion battery: BJ-DCB05ZKAC/BJ-DCB 05ZKAH 46.8V/3.0kWh

Odor Threshold: No information available

Melting Point/Freezing Point (°C): No information available

Flash Point (°C)(Closed Cup): Not applicable

Flammability: No information available

Vapor Pressure (MPa): Not applicable

Relative Density(Water=1): No information available

n-Octanol/Water Partition Coefficient: No information available

Decomposition Temperature (°C): No information available

Particle characteristics: No information available

Odor: No information available

pH: No information available

Initial Boiling Point and Boiling Range (°C): No information available

Evaporation Rate: Not applicable

Upper/lower explosive limits[% (v/v)]: Upper limit: No information available; Lower limit: No information available

Relative Vapour Density(Air = 1): Not applicable

Solubility: No information available

Auto-Ignition Temperature(°C): No information available

Kinematic Viscosity (mm²/s): Not applicable

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.

Possibility of Hazardous Reactions Conditions to Avoid Incompatible Materials	Ultrafine powder will self-ignite in the air at room temperature. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Incompatible materials, heat, flame and spark. Oxidants, halogen, interhalogen and mercury. Halogen, interhalogen, strong oxidant, water and acids.
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> **Acute Toxicity**

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	-	Lithium transition material oxidate	Not Listed	Not Listed
2	7429-90-5	Aluminium	Not Listed	Not Listed
3	64365-11-3	Carbon	Not Listed	Not Listed
4	7440-50-8	Copper	Not Listed	Not Listed
5	-	Organic electrolyte principally involves ester carbonate	Not Listed	Not Listed
6	-	Outer case	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
Copper	7440-50-8	LC ₅₀ : 0.665mg/L (96h)(Fish)	EC ₅₀ : 0.02mg/L (48h)	ErC ₅₀ : 7.9mg/L (96h)
Aluminium	7429-90-5	LC ₅₀ : 1.55mg/L (96h)(Fish)	No information available	No information available

> **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

Aluminium 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.

Copper 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

Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

Recommendations

Refer to section 13.1and 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

(Comment: The Class 9-Miscellaneous dangerous goods label may continue to be used until 2018-12-31.)

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Lithium transition material oxidate	x	x	x	x	x	x	x	x	x
Aluminium	√	√	√	√	√	√	√	√	x
Carbon	√	x	√	√	√	√	√	√	x
Copper	√	√	√	√	√	√	√	√	x
Organic electrolyte principally involves ester carbonate	x	x	x	x	x	x	x	x	x
Outer case	x	x	x	x	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

"x" That no data or included in the regulations

Section 16 Additional Information

Creation Date 2018/05/02

Revision Date 2018/05/02

Reason for Revision -

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 7th 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.

