

Material Safety Data Sheet

Report Number.....: B1703TR8133S

Laboratory: Shenzhen Bory Technology Service Co., Ltd.

Address: 3F, No.4 Building, Beng Shan Industrial, Sanwei Community,
Xixiang Street, Bao'an District, Shenzhen, Guangdong, China

Applicant's name: Shenzhen Eagle Battery Co., Ltd

Address.....: Room 1505, 15 Floor, Huitong Building, No.10 Longgang Road,
Longgang District, Shenzhen, China

Manufacturer's name.....: Dongguan Shipai Baoyin Electronics Factory

Address.....: No. 1, Lane 6, Xinwei, Fulong Village, Shipai Town, Dongguan
City, Guangdong Prov. China

Test item description.....: VRLA Battery

Model/type reference: VRLA Battery ES7.0-12

Trademark: N/A

Max. Charge Voltage.....: 12V

Typical Capacity.....: 7Ah

Version number.....: V1.0

Preparation Date.....: Mar. 21, 2017

Revision date.....: N/A.

Compiled by (name+ signature) ...: Vinci Yao

Approved by (name+ signature) ...: Usher Kuang



Section 1- Chemical Product and Company Identification

1. Chemical Product Identification

Product name: VRLA Battery

Model: VRLA Battery ES7.0-12

2. Company Identification

Applicant's name: Shenzhen Eagle Battery Co., Ltd

Address: Room 1505, 15 Floor, Huitong Building, No.10 Longgang Road, Longgang District, Shenzhen, China

Manufacturer /Supplier Name: Dongguan Shipai Baoyin Electronics Factory

Address: No. 1, Lane 6, Xinwei, Fulong Village, Shipai Town, Dongguan City, Guangdong Prov. China

Telephone number of the supplier: +86-0755-89361602

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This MSDS was prepared by Shenzhen Bory Technology Service Co., Ltd.

Item Number: B1703TR8133S

Referenced documents: ISO 11014:2009 Safety data sheet for chemical products;

Section 2 – Hazards Identification

GHS Classification:

Health	Environmental	Physical
Acute Toxicity – Not listed (NL) Eye Corrosion – Corrosive* Skin Corrosion – Corrosive* Skin Sensitization – NL Mutagenicity/Carcinogenicity – NL Reproductive/Developmental – NL Target Organ Toxicity (Repeated) – NL	Aquatic Toxicity – NL	NFPA – Flammable gas, hydrogen (during charging) CN - NL EU - NL

GHS Label: VRLA Battery, Wet

Symbols: C (Corrosive)



Hazard Statements

Contact with internal components may cause irritation of severe burns. Irritating to eyes.

Precautionary Statements

Keep out of reach of children. Keep containers tightly closed. Avoid heat, sparks, and open flame

	respiratory system, and skin.	while charging batteries. Avoid contact with internal acid.
Emergency Overview	May form explosive air/gas mixture during charging. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin.	
Potential Health Effects	<p>EYES: Direct contact of internal electrolyte liquid with eyes may cause severe burns or blindness.</p> <p>SKIN: Direct contact of internal electrolyte liquid with the skin may cause skin irritation or damaging burns.</p> <p>INGESTION: Swallowing this product may cause severe burns to the esophagus and digestive tract and harmful or fatal lead poisoning. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.</p> <p>INHALATION: Respiratory tract irritation and possible long term effects.</p>	
Acute Health hazards	Repeated or prolonged contact may cause mild skin irritation.	
Chronic Health hazards	Lead poisoning if persons are exposed to internal components of the batteries. Lead absorption may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, pain in the arms, legs and joints. Other effects may include central nervous system damage, kidney dysfunction, and potential reproductive effects. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.	
Medical Conditions Aggravated by Exposure	Respiratory and skin diseases may predispose one to acute and chronic effects of sulfuric acid and/or lead. Children and pregnant women must be protected from lead exposure. Persons with kidney disease may be at increased risk of kidney failure.	
Reported as carcinogen	Not applicable	

Section 3 – Composition/Information on Ingredients

VRLA Battery is a mixture.

Two way radio battery is a mixture. Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Lead, inorganic	43-70 (average: 65)	7439-92-1
Sulfuric acid	20-44 (average: 25)	7664-93-9
Antimony	0-4 (average: 1)	7440-36-0
Arsenic	<0.01	7440-38-2
Polypropylene	5-10 (average: 8)	9003-07-0
Additional Information: These ingredients reflect components of the finished product related to		

performance of the product as distributed into commerce.

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

Section 4 – First-aid Measures

Inhalation	If breathing difficulties develop, remove person to fresh air. If symptoms persist, seek medical attention.
Skin contact	Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing. If symptoms persist, seek medical attention.
Eye contact	Flush eyes with large amounts of water for at least 15 minutes. Seek immediate medical attention if eyes have been exposed directly to acid.
Ingestion	If swallowed, give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.

Section 5 – Fire-fighting Measures

Special fire fighting procedures & protective equipment	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Dry chemical, carbon dioxide, water, foam. Do not use water on live electrical circuits.
Unsuitable extinguishing Media	Not available
Unusual fire and explosion hazards	Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks, excessive heat or open flames.
Specific Hazards arising from the chemical	Not available
Specific Hazards in case of fire	Thermal shock may cause battery case to crack open. Containers may explode when heated.
Additional Information	Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Avoid Contact with Skin. Neutralize any spilled electrolyte with neutralizing agents, such as soda ash, sodium bicarbonate, or very dilute sodium hydroxide solutions.
Environmental Precautions	Prevent spilled material from entering sewers and waterways.
Spill containment & cleanup methods/ materials	Add neutralizer/absorbent to spill area. Sweep or shovel spilled material and absorbent and place in approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.
Additional Information	VRLA batteries and their plastic cases are recyclable. Contact your East Penn representative for recycling information.

Section 7 – Handling and Storage

PRECAUTIONS FOR SAFE HANDLING AND STORAGE	<ul style="list-style-type: none"> • Keep containers tightly closed when not in use. • If battery case is broken, avoid contact with internal components. • Do not handle near heat, sparks, or open flames. • Protect containers from physical damage to avoid leaks and spills. • Place cardboard between layers of stacked batteries to avoid damage and short circuits. • Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.
OTHER PRECAUTIONS (e.g.; Incompatibilities)	Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

Section 8 – Exposure Controls and Personal Protection

Engineering Controls	Charge in areas with adequate ventilation.
Personal Protective Equipment	<p>Respiratory Protection: Not required for normal conditions of use. See also special firefighting procedures (Section 5).</p> <p>Skin and body Protection: Wear chemical resistant gloves as a standard procedure to prevent skin contact.</p> <p>Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p>Eye Protection: Wear chemical resistant gloves as a standard procedure to prevent skin contact.</p>
Other Protective Equipment	Chemically-impervious apron and face shield recommended when adding water or electrolyte to batteries.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good

housekeeping.

EXPOSURE GUIDELINES & LIMITS:

OSHA	Permissible Exposure Limit (PEL/TWA)	Lead, inorganic (as Pb)	0.05 mg/m ³
		Sulfuric acid	1 mg/m ³
		Antimony	0.5 mg/m ³
		Arsenic	0.01 mg/m ³
0.01 mg/m ³	2007 Threshold Limit Value (TLV)	Lead, inorganic (as Pb)	0.05 mg/m ³
		Sulfuric acid	0.2 mg/m ³
		Antimony	0.5 mg/m ³
		Arsenic	0.01 mg/m ³
Quebec	Permissible Exposure Value (PEV)	Lead, inorganic (as Pb)	0.05 mg/m ³
		Sulfuric acid	1 mg/m ³ TWA 3 mg/m ³ STEV
		Antimony	0.5 mg/m ³
Ontario	Occupational Exposure Level (OEL)	Arsenic	0.1 mg/m ³
		Lead, inorganic (as Pb)	0.1 mg/m ³
		Sulfuric acid	1 mg/m ³ TWAEV 3 mg/m ³ STEV
		Lead, inorganic (as Pb)	0.15 mg/m ³
Netherlands	Maximaal Aanvaarde Concentratie (MAC)	Sulfuric acid	1 mg/m ³
		Lead, inorganic (as Pb)	0.15 mg/m ³
Germany	Maximale Arbeitsplatzkonzentrationen (MAK)	Sulfuric acid	1 mg/m ³ TWA 2 mg/m ³ STEL
		Lead, inorganic (as Pb)	0.15 mg/m ³
United Kingdom	Occupational Exposure Standard (OES)	Antimony	0.5 mg/m ³
		Lead	0.15 mg/m ³
		Antimony	0.5 mg/m ³
		Arsenic	0.1 mg/m ³

Remark: TWA – 8-Hour Time Weighted Average/ STE – Short Term Exposure / mg/m³ – milligrams per cubic meter of air/ NE – Not Established

Additional Information:

- Batteries are housed in polypropylene cases which are regulated as total dust or respirable dust only when they are ground up during recycling. The OSHA PEL for dust is 15 mg/m³ as total dust or 5 mg/m³ as respirable dust.
- May be required to meet Domestic Requirements for a Specific Destination(s).

Section 9 - Physical and Chemical Properties

Physical State	Sulfuric Acid: Liquid Lead: solid
Change in condition:	
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	235-240° F (as sulfuric acid)
Flash Point	Below room temperature (as hydrogen gas)
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	10 mmHg
Vapor Density: (Air = 1)	> 1
pH	<1
Density (g/cm ³)	3.0-4.2
Density/relative density	Not available.
Solubility in Water:	100% (as sulfuric acid)
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

Section 10 - Stability and Reactivity

Stability	This product is stable under normal conditions at ambient temperature.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Keep away from open flames, hot surfaces, and sources of ignition. Do not puncture, crush, or incinerate. Avoid mechanical and electrical abuse.
Incompatible Materials	Strong bases, combustible organic materials, reducing agents, finely

	divided metals, strong oxidizers, and water.
Hazardous Decomposition Products	Thermal decomposition will produce sulfur dioxide, sulfur trioxide, carbon monoxide, sulfuric acid mist, and hydrogen.
Possibility of Hazardous Reaction	Not Available

Section 11 - Toxicological Information

ACUTE TOXICITY (Test Results Basis and Comments):

Sulfuric acid: LD50, Rat: 21409 mg/kg

LC50, Guinea pig: 510 mg/m³

Lead: No data available for elemental lead

SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):

Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report that abnormal conduction velocities in person with blood lead levels of 50 ug/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Additional Information

- Very little chronic toxicity data available for elemental lead.
- Lead is listed by IARC as a 2B carcinogen: possible carcinogen in humans. Arsenic is listed by IARC, ACGIH, and NTP as a carcinogen, based on studies with high doses overlong periods of time. The other ingredients in this product, present at equal to or greater than 0.1% of the product, are not listed by OSHA, NTP, or IARC as suspect carcinogens.
- The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction. Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

Section 12 - Ecological Information

PERSISTENCE & DEGRADABILITY:

Lead is very persistent in soils and sediments. No data available on biodegradation.

BIO-ACCUMULATIVE POTENTIAL (Including Mobility):

Mobility of metallic lead between ecological compartments is low. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but very little bioaccumulation occurs through the food chain. Most studies have included lead compounds, not solid inorganic lead.

AQUATIC TOXICITY (Test Results & Comments):

Sulfuric acid: 24-hour LC50, fresh water fish (*Brachydanio rerio*): 82 mg/l

96-hour LOEC, fresh water fish (*Cyprinus carpio*): 22 mg/l

(lowest observable effect concentration)

Lead (metal): No data available

Additional Information

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

Section 13 – Disposal Considerations

WASTE DISPOSAL METHOD:	Follow local, State/Provincial, and Federal/National regulations applicable to as-used, end-of-life characteristics to be determined by end-user.
HAZARDOUS WASTE CLASS/CODE:	US - Not applicable to finished product as manufactured for distribution into commerce. CN – Not applicable to finished product as manufactured for distribution into commerce. EWC – Not applicable to finished product as manufactured for distribution into commerce.
Additional Information	Not Included – Recycle or dispose as allowed by local jurisdiction for the end-of-life characteristics as-disposed.

Section 14 – Transport Information

This report applies to by sea, by air and by land;

VRLA Battery complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of VRLA Battery. Batteries should be transported as Class 8 hazardous material, except for those

battery types declared to be exempt (contact Concorde for a current listing of exempt batteries);

The VRLA Battery according to the 2017 IATA Dangerous Goods regulations 58th Edition may be transported, and applicable U.S. DOT regulations for the safe transport of VRLA Battery.

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:

Proper Shipping Name	Batteries, Wet, Filled with Acid		
Hazard Class	8	ID Number	UN2794
Packing Group	III	Labels	Corrosive

AIRCRAFT – ICAO-IATA:

Proper Shipping Name	Batteries, Wet, Filled with Acid		
Hazard Class	8	ID Number	UN2794
Packing Group	II	Labels	Corrosive

Reference IATA packing instructions 800

VESSEL – IMO-IMDG:

Proper Shipping Name	Batteries, Wet, Filled with Acid		
Hazard Class	8	ID Number	UN2794
Packing Group	III	Labels	Corrosive

Reference IMDG packing instructions P801

Additional Information:

Transport requires proper packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.

Section 15 - Regulatory Information

OSHA hazard communication standard (49 CFR 1910.1200)

Hazardous Non-hazardous

Section 16 - Other Information

OTHER INFORMATION:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).
Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

SOURCES OF INFORMATION:

International Agency for Research on Cancer (1987), *IARC Monographs on the Evaluation of*

Carcinogenic Risks to Humans:

Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7, Lyon, France.

Ontario Ministry of Labour Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.

RTECS – Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health.

DISCLAIMER:

This Material Safety Data Sheet is based upon information and sources available at the time of preparation or revision date.

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END OF REPORT