B.B. TECH(CHANGSHA) CO., LTD.

SAFETY DATA SHEET

Valve Regulated Lead-Acid Rechargeable battery

Date: 01. Jan. 2020

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product name: Valve Regulated Lead-Acid Rechargeable battery, Maintenance Free Battery
Company: B.B. TECH(CHANGSHA) CO., LTD.
Address:
  China: No.57 DongsiRoad, Changsha National Economic & Technical Development Zone, Changsha, Hunan PRC.
  US Office: 6415 Randolph Street, Commerce, CA 90040
E-mail: maggy@bb-battery.com
Tel:
  China: +86-731-82955888
  US Office: 323-278-1900
Fax:
  China: +86-731-82955111
  US Office: 323-278-1268

Chemical family: This product is a wet lead acid storage battery. May also include gel absorbed electrolyte type lead acid battery types.

SECTION 2: HAZARDS IDENTIFICATION

GHS label elements:

<table>
<thead>
<tr>
<th>Category</th>
<th>GHS Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td></td>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td></td>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>H360</td>
<td>May damage fertility or the unborn child.</td>
</tr>
<tr>
<td></td>
<td>H373</td>
<td>May cause damage to organs through prolonged or</td>
</tr>
<tr>
<td></td>
<td>H220</td>
<td>Extremely flammable gas (hydrogen)</td>
</tr>
<tr>
<td></td>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting</td>
</tr>
<tr>
<td></td>
<td>P260</td>
<td>Do not breathe dust/fume/gas/mist/vapors/spray</td>
</tr>
<tr>
<td></td>
<td>P301/330/331</td>
<td>IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</td>
</tr>
<tr>
<td></td>
<td>P303/361/353</td>
<td>IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</td>
</tr>
<tr>
<td></td>
<td>P304/340</td>
<td>IF INHALED: Remove victim to fresh air and keep at</td>
</tr>
</tbody>
</table>

Signal Word: Danger
rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several
minutes. Remove contact lenses, if present and easy
to do. Continue rinsing.
Immediately call a POISON CENTER or
doctor/physician.

IF INHALED: Move victim to fresh air.
If coughing persists, call a POISON CENTER or doctor/physician.

Keep away from heat/sparks/open flames/hot
surfaces. No smoking
Do not breathe dust/fume/gas/mist/vapors/spray
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye
protection/face protection.
Store in well-ventilated area
Store locked up.
Collect spillage
Avoid release to the environment
Dispose of contents/container in accordance with
local/regional/national/international regulation.

Handling:

**Note:**
The battery has passed the vibration test, pressure differential test and leakage test at 55°C according
to Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulation 20th SPECIAL
PROVISION 238. It is not restricted to IATA Dangerous Goods Regulation (DGR) 60th according to
special provision A67 and is not restricted to IMDG CODE according to special provision 238.

### SECTION 3: INFORMATION ON INGREDIENTS

**Product name:** Valve Regulated Lead-Acid Rechargeable battery, Maintenance Free Battery

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>Concentration (% by Wt.)</th>
<th>Hazardous Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inorganic Lead/Lead Compounds</td>
<td>7439-92-1</td>
<td>~ 72%</td>
<td>T</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>7664-93-9</td>
<td>~ 20%</td>
<td>C</td>
</tr>
<tr>
<td>Fiberglass Separator</td>
<td>65997-17-3</td>
<td>~ 2%</td>
<td>/</td>
</tr>
<tr>
<td>Silicon Dioxide (Gel batteries only)</td>
<td>7631-86-9</td>
<td>~ 10% of acid Wt.</td>
<td>/</td>
</tr>
<tr>
<td>Container Plastic (ABS or PP)</td>
<td>9003-56-9 (ABS)</td>
<td>~ 5%</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>9003-07-0 (PP)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Inorganic lead and electrolyte (water and sulfuric acid solution) are the primary components of every
battery manufactured by BBT TECH. Other ingredients may be present dependent upon battery type. ABS is the primary case material of telecom and commercial batteries.

### SECTION 4: FIRST-AID MEASURES

Take proper precautions to ensure you own health and safety before attempting to rescue a victim
and provide first aid.

**Skin Contact:**
Electrolyte: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing
completely, including shoes, and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather.
Lead compounds: Wash immediately with soap and water. Lead compounds are not readily
absorbed through the skin.
**Flash Point:** Not Applicable  
**Flammable Limits:** LEL = 4.1% (hydrogen gas in air) ; UEL = 74.1%

**Extinguishing Media:**  
Small fire: Foam halogen and/or nonflammable gas fire extinguisher  
Big fire: Large quantities of sprinkled and/or atomized water. (In this case to prevent environmental damage, flush water has to treat appropriately.)

**Particular hazards:** Irritate, corrosive and/or toxicity gases may break out from the burning battery.

**Proper fire fighting:**  
If possible, turn off their power first when batteries are on charge or remove ignition source and remove batteries from the fire place. Extinguish out the fire from where well air flow and windward. Extinction water has to treat appropriately for preventing environmental damage. Cool down enough the burnt batteries with plenty amount of water. Try to put out fire in early stage. In this case to use protectors written below.

**Fire Fighting Procedures:**  
Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

**SECTION 5: FIRE FIGHTING MEASURES**

**Eye Contact:**  
Electrolyte and Lead compounds: Flush immediately with large amounts of water for at least 15 minutes; consult physician immediately.

**Inhalation Exposure:**  
Electrolyte: To wrap in a blanket the patient immediately, when the inhalation of sulfuric acid mist or vapor, then transfer from the inhaled location to a place where fresh air can be obtained. To get medical advice / attention immediately.  
Lead compounds: Remove from exposure, gargle, wash nose and lips; consult physician.

**Oral Exposure:**  
Electrolyte: If swallowed this liquid, wash your mouth with plenty of water immediately then to drink plenty of water and obtain medical advice or attention. Do not induce vomiting when swallowed. In addition, not perform any action, such as neutralization process.  
Lead compounds: Consult physician immediately.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Human body:**  
Do not touch the spilled electrolyte, and walk around the spillage place. Keep out outsiders from the spillage place.

**Environment:**  
Spilled electrolyte has to treat appropriately for preventing environmental damage, such as direct out flowing of the spilled electrolyte into the river, drain, etc..

**Neutralization:**  
Neutralize spilled electrolyte with sodium bicarbonate, lime, etc. and flush with large quantities of water. In this case to use protectors properly.
SECTION 7: HANDLING AND STORAGE

Handling
Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Avoid mechanical or electrical abuse and overcharge. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly.

Storage:
Store in a cool; well-ventilated area. Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Materials to Avoid: Strong oxidant, Combustible materials and Corrosives.

Charging:
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

SECTION 8: EXPOSURE CONTROL AND PERSONAL PROTECTION

Not applicable for Valve Regulated Lead Acid battery.

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Not applicable for Valve Regulated Lead Acid battery.

<table>
<thead>
<tr>
<th>Reference (component)</th>
<th>Electrolyte (Sulfuric Acid)</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
<td>Silvery solid</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.280 - 1.380 (38 - 48 %)</td>
<td>11.3</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>112 deg.C (38 %)</td>
<td>1740 deg.C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>- 40 deg.C or below</td>
<td>327 deg.C</td>
</tr>
<tr>
<td>Solidifying Point</td>
<td>- 56.4 deg.C (34.6 %)</td>
<td>-</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>3.17 kPa (30 %)</td>
<td>0.1 Pa or less (25 deg.C)</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Materials to Avoid: Strong oxidant, Corrosives.

Conditions to Avoid: Avoid exposure to heat and open flame, Avoid mechanical or electrical abuse and overcharge. Prevent short circuits. Prevent movement which could lead to short circuits.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Sulfur oxides, Sulfuric acid mist, Metal oxides.
### SECTION 11: TOXICOLOGICAL INFORMATION

**Routes of Entry:**
- Electrolyte: Harmful by all routes of entry. Under normal conditions of use, sulfuric acid vapors and mist are not generated. Sulfuric acid vapors and mist may be generated when product is overheated, oxidized, or otherwise processed or damaged.
- Lead compounds: Under normal conditions of use, lead dust, vapors, and fumes are not generated. Hazardous exposure can occur only when product is heated above the melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

**Acute Toxicity:**
- Inhalation LD\textsubscript{50}:
  - Electrolyte: LC\textsubscript{50} rat: 375 mg/m\textsuperscript{3}; LC\textsubscript{50} guinea pig: 510 mg/m\textsuperscript{3}
  - Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
- Oral LD\textsubscript{50}:
  - Electrolyte: rat: 2140 mg/kg
  - Elemental lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)

Correspond to section 3

### SECTION 12: ECOLOGICAL INFORMATION

**Environmental Fate:**
Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

**Environmental Toxicity:** Aquatic Toxicity:
- Sulfuric acid:
  - 24-hr LC\textsubscript{50}, freshwater fish (Brachydanio rerio): 82 mg/L
  - 96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
- Lead:
  - 48 hr LC\textsubscript{50} (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion

### SECTION 13: DISPOSAL CONSIDERATIONS

**Appropriate Method of Disposal of substance:**
- Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.
SECTION 14: TRANSPORT INFORMATION

Land Transport

Land Transport (ADR / RID)
UN No: UN2800
Classification ADR / RID: Class 8
Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE and electric storage
Packing Group ADR: not assigned
Tunnel code: E
ADR / RID: New and spent (used) batteries are exempt from all ADR / RID (special provision 598)

Sea Transport

Sea transport (IMO/IMDG Code)
UN No: UN2800
Classification: Class 8
Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE and electric storage
EmS: F-A, S-B
Non-Spillable batteries meet the requirements of Special Provision 238; they are exempt from all IMDG codes and are not subject to special regulation for sea transport

Air Transport

Air Transport (ICAO/IATA-DGR)
UN No: 2800
Classification: Class 8
Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE and electric storage
Special Provision A48: Packaging test are not considered necessary
Special Provision A67: B.B. VRLA batteries meet the requirements of Packing Instruction 872.
The battery has been prepared for transport so as to prevent:
a) A short-circuit of the battery’s terminals by packaging in a strong and sturdy carton box; AND/OR
b) The battery has been fitted with an insulating cover (made from ABS) which prevents contact with the terminals.
c) Unintentional activation is thus prevented
The words “NOT RESTRICTED” and the Special Provision (SP) number must be indicated on all shipping documents
Special Provision; A164: The battery has been prepared for transport so as to prevent:
a) Short-circuit of the battery’s terminals by packaging in a strong and sturdy carton box; AND/OR
b) The battery has been fitted with a cover (made from ABS) which prevents contact with the terminals
c) Unintentional activation is thus prevented

All methods of transport

DO NOT PLACE VRLA BATTERIES INSIDE SEALED OR GAS-TIGHT ENCLOSURES.
VRLA Batteries emit hydrogen gas which is highly flammable and will form explosive mixtures in air from approximately 4% to 76%. This can be ignited by a spark at any voltage, naked flames or other sources of ignition.

B.B. Batteries having met the related conditions are EXEMPT from hazardous goods regulations for the purpose of transportation by D.O.T., 49 CFR 173.159(f), and IATA/ICAO, and therefore are unrestricted for transportation by any means. For all modes of transportation, each battery outer package is labeled “NON-SPILLABLE”. All our Batteries are marked non-spillable.
US federal regulations:

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

Hazardous Chemical Reporting Requirements apply when an Extremely Hazardous Substance is present at a facility in an amount equal to or exceeding 500 pounds or the Threshold Planning Quantity, whichever is lower per 40CFR370.10(a)(1)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
- Lead and lead compounds (CAS 7439-92-1) Listed.
- Sulphuric acid (CAS 7664-93-9) Listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
- Lead and lead compounds (CAS 7439-92-1) Reproductive toxicity
- Sulphuric acid (CAS 7664-93-9) Central nervous system Kidney Blood Acute toxicity

Superfund Amendments and Reauthorization Act of 1986 (SARA):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable Quantity (pounds)</th>
<th>Threshold planning quantity lower value (pounds)</th>
<th>Threshold planning quantity lower value (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid</td>
<td>7664-93-9</td>
<td>1000</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>SARA 311/312 Hazardous chemical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classified hazard Categories</td>
<td></td>
<td>Acute toxicity (any route of exposure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin corrosion or irritation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Serious eye damage or eye irritation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carcinogenicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reproductive toxicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARA 313 (TRI reporting)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical name</td>
<td>CAS number</td>
<td>% by wt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead and lead compounds</td>
<td>7439-92-1</td>
<td>60-75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>7664-93-9</td>
<td>5-15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other federal regulations:

- Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
  Lead and lead compounds (CAS 7439-92-1)
- Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
  Sulphuric acid (CAS 7664-93-9)
- Safe Drinking Water Act (SDWA):
  Not regulated.
  Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number Sulphuric acid (CAS 7664-93-9) 6552
  Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
  Sulphuric acid (CAS 7664-93-9) 20%WV
  DEA Exempt Chemical Mixtures Code Number Sulphuric acid (CAS 7664-93-9) 6552
US state regulations:

US. Massachusetts RTK - Substance List
Lead and lead compounds (CAS 7439-92-1)
Sulphuric acid (CAS 7664-93-9)
US. New Jersey Worker and Community Right-to-Know Act
Lead and lead compounds (CAS 7439-92-1)
Sulphuric acid (CAS 7664-93-9)
US. Pennsylvania Worker and Community Right-to-Know Law
Lead and lead compounds (CAS 7439-92-1)
Sulphuric acid (CAS 7664-93-9)
US. Rhode Island RTK
Lead and lead compounds (CAS 7439-92-1)
Sulphuric acid (CAS 7664-93-9)

California Proposition 65:
WARNING: Cancer and Reproductive Harm. www.P65Warnings.ca.gov
or
PROPOSITION 65 WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer.
WASH HANDS AFTER HANDLING.

California Proposition 65 - CRT: Listed date/Carcinogenic substance:
Lead and lead compounds (CAS 7439-92-1) Listed: October 1, 1992
Acrylonitrile(CAS 107-13-1) Listed: July 1, 1987
1,3-Butadiene(CAS 106-99-0) Listed: April 1, 1988
Sulphuric acid (CAS 7664-93-9) Listed: March 14, 2003
Styrene(CAS 100-42-5) Listed: April 22, 2016

California Proposition 65 - CRT: Listed date/Developmental toxin:
Lead and lead compounds (CAS 7439-92-1) Listed: February 27, 1987
1,3-Butadiene(CAS 106-99-0) Listed: April 16, 2004

California Proposition 65 - CRT: Listed date/Female reproductive toxin:
Lead and lead compounds (CAS 7439-92-1) Listed: February 27, 1987
1,3-Butadiene(CAS 106-99-0) Listed: April 16, 2004

California Proposition 65 - CRT: Listed date/Male reproductive toxin:
Lead and lead compounds (CAS 7439-92-1) Listed: February 27, 1987
1,3-Butadiene(CAS 106-99-0) Listed: April 16, 2004

Regs, tit. 22, 69502.3,subd. (a))
Lead and lead compounds (CAS 7439-92-1)
Sulphuric acid (CAS 7664-93-9)

EU Regulation:

In accordance with EU2013/56/EU Battery Directive, VRLA batteries should present crossed-out wheeled bin symbol of lead together with the ISO recycling symbol. Does not contain any mercury, Hg, (<0.0005%) or cadmium, Cd, (<0.002%).
<table>
<thead>
<tr>
<th>SECTION 16: OTHER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products such as Batteries are not in the scope of regulation which requires the publication of an EU Safety Data Sheet (91/155/EEC).</td>
</tr>
</tbody>
</table>