



Technical Report No. 68.413.17.0002.02A  
Dated 2017-02-09

---

## Safety Data Sheet

Regulation (EC) No 1907/2006 (REACH) &  
COMMISSION REGULATION (EU) 2015/830

|                            |                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>           | BMZ Company Limited                                                                                                               |
| <b>Address</b>             | Room 101, 401, 501 , Floor 2-3, 2nd building, No.2 Jinlong Street, Baolong Industry Zone, Longgang, Shenzhen, Guangdong, PR.China |
| <b>Attn.:</b>              | Ms. Jenny Gong                                                                                                                    |
| <b>Sample Description:</b> | Li-ion Battery                                                                                                                    |
| <b>Model No.:</b>          | 107513                                                                                                                            |
| <b>Manufacturer:</b>       | BMZ USA Inc                                                                                                                       |
| <b>Address:</b>            | 2656 Lishelle Pl<br>Virginia Beach, VA 23452                                                                                      |
| <b>Tel#:</b>               | (757) 821-8494                                                                                                                    |

This technical report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
TÜV SÜD Group  
Building 12&13, Zhiheng Wisdomland Business Park,  
Nantou Checkpoint road 2,  
Shenzhen 518052, P. R. China

Tel.: (86) 755 88286998  
Fax: (86) 755 88285299



Technical Report No. 68.413.17.0002.01A  
Dated 2017-01-22

**SECTION 1: Identification of the substance /mixture and of the company/undertaking**

**1.1. Product identifier**

Product Name: Li-ion Battery  
Brand /  
Model No.: 107513  
REACH registration No.: Not applicable

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use: Battery  
Uses advised against: No information available

**1.3. Details of the supplier of the safety data sheet**

Manufacturer: BMZ USA Inc  
Address: 2656 Lishelle Pl  
Virginia Beach, VA 23452  
Tel#: (757) 821-8494

**1.4. Emergency telephone number**

Emergency Phone: 86-0755-89775803

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

Not classified.

**2.2. Label elements**

Symbols/Pictograms No pictogram is used.  
Signal word No signal word is used.  
Hazard Statements Not classified.  
Precautionary Statements Not classified.

### 2.3. Other hazards

No information available

## SECTION 3: Composition/information on ingredients

### 3.1. Mixture

#### Composition for Lithium ion cell (Model: ICR18650)

| Chemical Name                | EC No     | CAS No     | Weight-% | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|------------------------------|-----------|------------|----------|-----------------------------------------------------------------|
| Metal oxide                  | -         | -          | 40-45    | Not classified                                                  |
| Carbon                       | 231-153-3 | 7440-44-0  | 10-30    | Not classified                                                  |
| Electrolyte                  | -         | -          | 10-20    | Not classified                                                  |
| Copper                       | 231-159-6 | 7440-50-8  | 2-10     | Not classified                                                  |
| Aluminum foil                | 231-072-3 | 7429-90-5  | 2-10     | Flam. Sol. 1 (H228)<br>Water-react. 2 (H261)                    |
| Ethylene carbonate           | 202-510-0 | 96-49-1    | 5        | Not classified                                                  |
| 1,1-Difluoroethylene polymer | -         | 24937-79-9 | <5       | Not classified                                                  |
| Polypropylene                | 618-352-4 | 9003-07-0  | 3        | Not classified                                                  |

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General advice

No special technical protective measures are necessary. If symptoms persist, call a physician.

#### Inhalation

Not an expected route of exposure. If symptoms persist, call a physician.

#### Skin Contact

No special technical protective measures are necessary. If skin irritation persists, call a physician.

#### Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

#### Ingestion

Rinse mouth. Get medical attention. Never give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.

Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: No information available

### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating and toxic gases and vapors

### 5.3. Advice for firefighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.



Technical Report No. 68.413.17.0002.01A  
Dated 2017-01-22

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

Local authorities should be advised if significant spillages cannot be contained. Prevent entry into waterways, sewers, basements or confined areas.

### 6.3. Methods and material for containment and cleaning up

Pick up and transfer to properly labeled containers.

### 6.4. Reference to other sections

See Section 7 for more information  
See section 8 for more information  
See section 13 for more information

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Take precautionary measures against static discharges. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protection recommended in Section 8.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place  
Keep away from heat  
Keep locked up and out of reach of children  
Keep away from food, drink and animal feeding stuffs  
Store in accordance with local regulations

### 7.3. Specific end use(s)

Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Ingredients with limit values that require monitoring at the workplace:

| Chemical Name                    | Australia                                    | Austria                                                                                                          | Belgium | Denmark                                                  | European Union |
|----------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------|----------------|
| Carbon (CAS #: 7440-44-0)        | -                                            | TWA: 5 mg/m <sup>3</sup>                                                                                         | -       | -                                                        | -              |
| Copper (CAS #: 7440-50-8)        | 1 mg/m <sup>3</sup><br>0.2 mg/m <sup>3</sup> | STEL 4 mg/m <sup>3</sup><br>STEL 0.4 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup><br>TWA: 0.1 mg/m <sup>3</sup> | -       | TWA: 1.0 mg/m <sup>3</sup><br>TWA: 0.1 mg/m <sup>3</sup> | -              |
| Aluminum foil (CAS #: 7429-90-5) | 10 mg/m <sup>3</sup><br>5 mg/m <sup>3</sup>  | STEL 20 mg/m <sup>3</sup><br>TWA: 10 mg/m <sup>3</sup>                                                           | -       | TWA: 5 mg/m <sup>3</sup><br>TWA: 2 mg/m <sup>3</sup>     | -              |

| Chemical Name                    | Latvia                                                  | France                                                                              | Finland                                                | Germany                                                                                                     | Italy |
|----------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------|
| Copper (CAS #: 7440-50-8)        | TWA: 0.5 mg/m <sup>3</sup><br>STEL: 1 mg/m <sup>3</sup> | TWA: 0.2 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup><br>TWA: 0.1 mg/m <sup>3</sup> | TWA: 0.01 mg/m <sup>3</sup><br>Ceiling / Peak: 0.02 mg/m <sup>3</sup> Ceiling / Peak: 0.2 mg/m <sup>3</sup> | -     |
| Aluminum foil (CAS #: 7429-90-5) | TWA: 2 mg/m <sup>3</sup>                                | TWA: 10 mg/m <sup>3</sup><br>TWA: 5 mg/m <sup>3</sup>                               | TWA: 1.5 mg/m <sup>3</sup>                             | TWA: 4 mg/m <sup>3</sup><br>TWA: 1.5 mg/m <sup>3</sup>                                                      | -     |
| Polypropylene (CAS #: 9003-07-0) | TWA: 5 mg/m <sup>3</sup>                                | -                                                                                   | -                                                      | -                                                                                                           | -     |

**Technical Report No. 68.413.17.0002.01A**  
**Dated 2017-01-22**

| Chemical Name               | Poland                                                   | Portugal                                           | Spain                                              | Switzerland              | Netherlands                |
|-----------------------------|----------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------|----------------------------|
| Copper (CAS #: 7440-50-8)   | -                                                        | -                                                  | -                                                  | -                        | TWA: 0.1 mg/m <sup>3</sup> |
| Aluminum (CAS #: 7429-90-5) | TWA: 2.5 mg/m <sup>3</sup><br>TWA: 1.2 mg/m <sup>3</sup> | TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> | TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> | TWA: 3 mg/m <sup>3</sup> | -                          |

| Chemical Name               | Norway                                                                                                             | United Kingdom                                                                                                    | ACGIH TLV                                                                    | OSHA PEL                                                                                                                                                                                                                                           | NIOSH IDLH                                                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Copper (CAS #: 7440-50-8)   | TWA: 0.1 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup><br>STEL: 0.1 mg/m <sup>3</sup><br>STEL: 1 mg/m <sup>3</sup> | -                                                                                                                 | TWA: 0.2 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> Cu dust and mist | -                                                                                                                                                                                                                                                  | IDLH: 100 mg/m <sup>3</sup> dust, fume and mist<br>IDLH: 100 mg/m <sup>3</sup> Cu dust and mist<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> Cu dust and mist |
| Aluminum (CAS #: 7429-90-5) | TWA: 5 mg/m <sup>3</sup><br>STEL: 5 mg/m <sup>3</sup>                                                              | STEL: 30 mg/m <sup>3</sup><br>STEL: 12 mg/m <sup>3</sup><br>TWA: 10 mg/m <sup>3</sup><br>TWA: 4 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> respirable fraction                                 | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated)<br>TWA: 15 mg/m <sup>3</sup> total dust (vacated)<br>TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated)<br>TWA: 5 mg/m <sup>3</sup> Al Aluminum | TWA: 10 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable dust TWA: 5 mg/m <sup>3</sup> Al                                                                                                              |

**Derived No Effect Level (DNEL)**

No information available.

**Predicted No Effect Concentration (PNEC)**

No information available.

## 8.2. Exposure controls

### Engineering Controls

Ensure adequate ventilation, especially in confined areas.

### Personal protective equipment

|                                  |                                                                           |
|----------------------------------|---------------------------------------------------------------------------|
| <b>Eye/face protection:</b>      | No special technical protective measures are necessary.                   |
| <b>Hand Protection:</b>          | No special technical protective measures are necessary.                   |
| <b>Skin and body protection:</b> | No special technical protective measures are necessary.                   |
| <b>Respiratory protection:</b>   | In case of insufficient ventilation, wear suitable respiratory equipment. |

## 8.3. Environmental exposure controls

Avoid release to the environment.

# SECTION 9: Physical and Chemical Properties

## 9.1. Information on basic physical and chemical properties

|                               |                  |
|-------------------------------|------------------|
| Appearance                    | Solid            |
| Color                         | Gray             |
| Odor                          | Odorless         |
| Odor Threshold                | Not determined   |
| pH                            | Not determined   |
| Melting point/freezing point  | Not determined   |
| Boiling point / boiling range | Not determined   |
| Flash point                   | Not determined   |
| Evaporation rate              | Not determined   |
| Flammability                  | Not determined   |
| Flammability Limit in Air     | Not determined   |
| Vapor Pressure                | Not determined   |
| Vapor density                 | Not determined   |
| Density                       | Not determined   |
| Relative density              | Not determined   |
| Bulk density                  | Not determined   |
| Specific gravity              | Not determined   |
| Water solubility              | Not determined   |
| Partition coefficient         | Not determined   |
| Autoignition temperature      | Not determined   |
| Decomposition temperature     | Not determined   |
| Kinematic viscosity           | Not determined   |
| Dynamic viscosity             | Not determined   |
| Explosive properties          | Not an explosive |



**Technical Report No. 68.413.17.0002.01A**  
**Dated 2017-01-22**

Oxidizing properties                      Not determined

**9.2. Other information**

|                               |                               |
|-------------------------------|-------------------------------|
| Nominal voltage: 36V          | Nominal voltage: 36V          |
| Rated capacity: 12Ah, 432Wh   | Rated capacity: 12Ah, 432Wh   |
| Limited charge voltage: 42.2V | Limited charge voltage: 42.2V |

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No information available.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

None under normal processing.

**10.4. Conditions to avoid**

Heat, flames and sparks.

**10.5. Incompatible materials**

None known based on information supplied.

**10.6. Hazardous decomposition products**

None under normal use conditions.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

| Chemical Name                       | Oral LD50             | Dermal LD50          | Inhalation LC50       |
|-------------------------------------|-----------------------|----------------------|-----------------------|
| Copper (CAS #: 7440-50-8)           | > 2500 mg/kg bw(rat)  | > 2000 mg/kg bw(rat) | =1.03 mg/L/4 h(rat)   |
| Carbon (CAS #: 7440-44-0)           | > 10000 mg/kg ( Rat ) | -                    | -                     |
| Aluminum (CAS #: 7429-90-5)         | > 15900 mg/kg bw(rat) | -                    | > 0.888 mg/L/4 h(rat) |
| Ethylene carbonate (CAS #: 96-49-1) | = 10 g/kg ( Rat )     | > 3 g/kg ( Rabbit )  | -                     |
| Polypropylene (CAS #: 9003-07-0)    | >5 g/kg               | -                    | -                     |

#### Skin corrosion/irritation

Non-irritating to the skin.

#### Serious eye damage/eye irritation

No eye irritation.

#### Sensitization

No information available.

#### Germ cell mutagenicity

No information available.

#### Carcinogenicity

| Chemical name                    | European Union | IARC    |
|----------------------------------|----------------|---------|
| Polypropylene (CAS #: 9003-07-0) | -              | Group 3 |

#### Reproductive toxicity

No information available.

#### STOT - single exposure

No information available.

#### STOT - repeated exposure

No information available.

#### Aspiration hazard

No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

| Chemical Name             | Algae/aquatic plants EC50                                                                                                              | Fish LC50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Crustacea EC50 |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Copper (CAS #: 7440-50-8) | 0.031 - 0.054 mg/L/96h<br>Pseudokirchneriella subcapitata static<br>0.0426 - 0.0535 mg/L/72h<br>Pseudokirchneriella subcapitata static | 1.25: 96 h <i>Lepomis macrochirus</i> mg/L<br>LC50 static 0.3: 96 h<br><i>Cyprinus carpio</i> mg/L<br>LC50 semi-static 0.8: 96 h<br><i>Cyprinus carpio</i> mg/L LC50 static<br>0.112: 96 h <i>Poecilia reticulata</i> mg/L LC50<br>flow-through 0.0068 - 0.0156: 96 h<br><i>Pimephales promelas</i> mg/L LC50 0.3: 96 h<br><i>Pimephales promelas</i> mg/L LC50 static 0.2: 96 h<br><i>Pimephales promelas</i> mg/L LC50<br>flow-through 0.052: 96 h<br><i>Oncorhynchus mykiss</i> mg/L LC50<br>flow-through | -              |

### 12.2. Persistence and degradability

No information available.

### 12.3. Bioaccumulative potential

No information available.

### 12.4. Mobility in soil

No information available.

### 12.5. Results of PBT and vPvB assessment

No information available.

### 12.6. Other adverse effects

No information available

## **SECTION 13: Disposal considerations**

### **13.1. Waste treatment methods**

|                                     |                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------|
| Waste from residues/unused products | Disposal should be in accordance with applicable regional, national and local laws and regulations. |
| Contaminated packaging              | Disposal should be in accordance with applicable regional, national and local laws and regulations. |

## **SECTION 14: Transport information**

|                                                                                 |                                                                 |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>14.1. UN Number</b>                                                          | 3480                                                            |
| <b>14.2. UN Proper shipping name</b>                                            | LITHIUM ION BATTERIES (including lithium ion polymer batteries) |
| <b>14.3. Transport hazard class(es)</b>                                         | 9                                                               |
| <b>14.4. Packing Group</b>                                                      |                                                                 |
| <b>14.5. Environmental hazards</b>                                              | Not regulated                                                   |
| <b>14.6. Special precautions for user</b>                                       | No information available                                        |
| <b>14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code</b> | Does not apply                                                  |

## **SECTION 15: Regulatory information**

### **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### **European Union**

| Component                           | EINECS/ELINCS | SVHC candidates | RESTRICTIONS - REACH TITLE VIII |
|-------------------------------------|---------------|-----------------|---------------------------------|
| Carbon<br>7440-44-0 ( 10-30 )       | X             | -               | -                               |
| Copper<br>7440-50-8 ( 2-10 )        | X             | -               | -                               |
| Aluminum foil<br>7429-90-5 ( 2-10 ) | X             | -               | -                               |
| Ethylene carbonate<br>96-49-1 ( 5 ) | X             | -               | -                               |

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

#### **International inventories**

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
TÜV SÜD Group  
Building 12&13, Zhiheng Wisdomland Business Park,  
Nantou Checkpoint road 2,  
Shenzhen 518052, P. R. China

Tel.: (86) 755 88286998  
Fax: (86) 755 88285299

**Technical Report No. 68.413.17.0002.01A**  
**Dated 2017-01-22**

| Component                                           | TSCA | DSL/NDSL | ENCS | IECSC | KECL | PICCS | AICS |
|-----------------------------------------------------|------|----------|------|-------|------|-------|------|
| Carbon<br>7440-44-0 ( 10-30 )                       | X    | X        | -    | X     | X    | X     | X    |
| Copper<br>7440-50-8 ( 2-10 )                        | X    | X        | -    | X     | X    | X     | X    |
| Aluminum foil<br>7429-90-5 ( 2-10 )                 | X    | X        | -    | X     | X    | X     | X    |
| Ethylene carbonate<br>96-49-1 ( 5 )                 | X    | X        | X    | X     | X    | X     | X    |
| 1,1-Difluoroethylene<br>polymer<br>24937-79-9 ( 5 ) | X    | X        | X    | X     | X    | X     | X    |
| Polypropylene<br>9003-07-0 ( 3 )                    | X    | X        | X    | X     | X    | X     | X    |

## 15.2. Chemical safety assessment

No information available

## SECTION 16: Other information

**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

Key or legend to abbreviations and acronyms used in the safety data sheet

**TWA** - TWA (time-weighted average)

**STEL** - STEL (Short Term Exposure Limit)

**Ceiling** - Maximum limit value

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**Test result according to Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria, Part III, subsection 38.3 (ST/SG/AC.10/11/Rev.5 Amendment 1 and Amendment 2)**

The battery samples pass all of the requirement test items.

**Full text of H-Statements referred to under section 3**

H228 - Flammable solid.

H261 - In contact with water releases flammable gases.

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

\*\*\*\*\*

