

Report No.: BZIW70VF61714716

# SDS Report

2016 年 1 月 1 日生效

Sample Description      Rechargeable Lithium Iron Phosphate Battery  
(12.8V, 170Ah, 2176Wh)

Applicant      O'CELL New Energy Technology CO.,LTD.

Pony Testing International Group  
[www.ponytest.com](http://www.ponytest.com)

No.: BZIW70VF61714716  
Code: sna6605

Report in electronic version is only for client's preview and reference.  
For confirmative content, formal test report shall prevail.

**Melting point/freezing point: N/A**

**Initial boiling point and boiling range: N/A**

**Flash Point: N/A**

**Evaporation rate: N/A**

**Upper/lower flammability or explosive limits: N/A**

**Vapour pressure: N/A**

**Vapour density: N/A**

**Relative density: N/A**

**Density: N/A**

**Solubility in Water: N/A**

**Partition coefficient: n-octanol/water: N/A**

**Auto-ignition temperature: N/A**

**Decomposition temperature: N/A**

**Viscosity: N/A**

**Explosive properties: N/A**

**Oxidising properties: N/A**

**Flammability (solid, gas): N/A**

**9.2 Other information: 12.8V, 170Ah, 2176Wh**

## Section 10 - Stability and Reactivity

**10.1 Reactivity: No effect under routine handling and use. In case of battery case breakage, the internal materials within battery may react with strong oxidizer, strong acid, strong base, etc..**

**10.2 Chemical stability: Stable under normal storage and handling conditions.**

**10.3 Possibility of hazardous reactions: When a battery cell is exposed to an external short-circuit, crushed, modification, high temperature, open flames, it will be the cause of heat generation and ignition.**

**10.4 Conditions to avoid: Incompatible materials, any sources of ignition or heat (e.g. open flames, smoking, hot surfaces, excess heat), mechanical damage or electrical overcharging.**

**10.5 Incompatible materials: Conductive materials, water, seawater, strong oxidants, strong acid, strong bases, etc.**



**10.6 Hazardous decomposition products:** In case of a fire or high temperature, metal oxides and irritating/harmful fumes/smoke may be generated.

## Section 11 - Toxicological Information

### 11.1 Information on toxicological effects:

#### Acute toxicity:

CAS No.	LD50/LC50
15365-14-7	No data available
7782-42-5	No data available
96-49-1	LD50 Rat oral 10 g/kg
616-38-6	LD50 Rat oral 13 g/kg
623-53-0	No data available
21324-40-3	No data available
108-32-7	LD50 Rat oral $\geq$ 29000 mg/kg
7440-50-8	No data available
7429-90-5	No data available
9002-86-2	No data available
9003-07-0	No data available
7440-02-0	LD50 Rat oral $\geq$ 5000mg/kg

Skin irritation/corrosion: No data available.

Serious eye damage/irritation:

CAS#108-32-7:

- The substance was found to be a moderate irritant in rabbit tests (PATTY (5th, 2001). In other rabbit tests (OECD Guidelines 405), its scores for corneal clouding and conjunctival erythema were 1.72 and 2.67, respectively, leading to the conclusion that the substance is irritating (IUCLID (2000)).

Respiratory or skin sensitization:

**CAS#7440-02-0:**

-Due to the fact that the substance is classified into "Respiratory Sensitizing Substance: Group 2" according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)) and "Respiratory Sensitizing Substance" by the Japanese Society of Occupational Allergy and DFG.

-Due to the fact that the substance is classified into "Skin Sensitizing Substance: Group 1" according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)) and Skin Sensitizing Substance by the Japanese Society of Occupational Allergy and DFG.

Germ cell mutagenicity: No data available.

Repeated dose toxicity:

**CAS#7782-42-5:**

- NOAEL: ca. 813 mg/kg bw/day (actual dose received)(rat(male),oral)

**CAS#108-32-7:**

- NOAEC local: 100 mg/m<sup>3</sup> air (nominal) (inhalation rat)

**CAS#7440-02-0:**

- NOEL < 4 mg/m<sup>3</sup> air(inhalation rat)

Carcinogenicity:

**CAS#9002-86-2:**

-IARC: Group 3-Not classifiable as to carcinogenicity to humans.

-Not listed as carcinogens by ACGIH, CA Prop 65,NTP.

**CAS#9003-07-0:**

-IARC: Group 3-Not classifiable as to carcinogenicity to humans.

-Not listed as carcinogens by ACGIH, CA Prop 65,NTP.

**CAS#7440-02-0:**

-IARC: 2B Possibly carcinogenic to humans

-CA Prop 65: listed date October /1/1989

-Not listed as carcinogens by ACGIH, NTP.

Other compositions are not listed as carcinogens by ACGIH, IARC, NTP, or CA Prop 65.

Reproductive toxicity: No data available.

STOT-single exposure:

**CAS#7440-50-8:**

-May cause respiratory irritation (respiratory tract irritation)

**CAS#7440-02-0:**

-Human evidence including "alveolar wall damage, alveolar edema and



**significant renal tubular necrosis" (ATSDR (2005)).**

**-The acute toxicity of nickel compounds manifests in humans as "nausea, diarrhea, dizziness, headache" (ECETOC TR33 (1989)).**

**STOT-repeated exposure:**

**CAS#7440-50-8:**

**-Cause damage to organs through prolonged or repeated exposure (liver)**

**CAS#7429-90-5:**

**-pulmonary fibrosis is observed to the human in long-term exposure (EHC 194 (1997), PATTY (4th, 1994), and ATSDR (1999)).**

**CAS#7440-02-0:**

**-The respiratory organs are considered to be the target organs since there are reports on adverse effects such as "pleurisy, pneumonia, congestion, and edema"(CaPSAR (1994)) and then "focal accumulation of alveolar macrophages and interstitial"(ATSDR (2005)).**

**-The chronic toxicity of nickel compounds in humans is mentioned as follows: "Chronic exposure to nickel and its compounds may produce respiratory irritation and degeneration in humans even at doses close to occupational exposure limits. Prolonged exposure to high concentrations is likely to result in the fibroid lung"(ECETOC TR33 (1989)).**

**Aspiration hazard: No data available.**

**Potential Health Effects:**

- **Eye: No health effects are expected under normal use. If contact the Lithium ion batteries contained, may result in severe irritation and chemical burns.**
- **Skin: No health effects are expected under normal use. If contact the Lithium ion batteries contained, may cause skin chemical burns, redness and irritation.**
- **Ingestion: Ingestion is unlikely under normal use. Harmful if swallowed the electrolyte contained inside the battery. Exposure to the electrolyte contained inside the battery may cause severe chemical burn to mouth, esophagus and gastrointestinal system.**
- **Inhalation: No health effects are expected under normal use. If battery is broken, inhale fume/dust may cause respiratory irritation, cough, shortness of breath or chemical burns.**

## Section 12 - Ecological Information

### 12.1 Toxicity: No data available.

### 12.2 Persistence and degradability:

#### CAS#96-49-1:

- **AEROBIC:** Present at 100 mg/l, reached 64.1% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test(1).

#### CAS#616-38-6:

- **AEROBIC:**It has >90% biodegraded in 28 days using an activated sludge inoculum in the OECD 301C test (Modified MITI)(1).

#### CAS#108-32-7:

- It was biodegraded 80% in a manostatic respirometer screening study using seed from a wastewater treatment plant during a 10 day incubation period(1).[(1) Kayser G et al; Git Fachz Lab 37: 416-19 (1993)]

#### CAS#7440-50-8

- May cause long lasting harmful effects to aquatic life

#### CAS#7429-90-5:

- May cause long lasting harmful effects to aquatic life

#### CAS#7440-02-0:

- May cause long lasting harmful effects to aquatic life

### 12.3 Bioaccumulative potential:

#### CAS#96-49-1:

- The potential for bioconcentration in aquatic organisms is low.

#### CAS#616-38-6:

- The potential for bioconcentration in aquatic organisms is low.

#### CAS#108-32-7:

- The potential for bioconcentration in aquatic organisms is low.

### 12.4 Mobility in soil:

#### CAS#96-49-1:

- Expected to have very high mobility in soil.

#### CAS#616-38-6:

- Expected to have very high mobility in soil.

#### CAS#108-32-7:

- Expected to have very high mobility in soil.



**12.5 Results of PBT and vPvB assessment: No compositions in this product with known CAS numbers are assessed to be a PBT or a vPvB.**

**12.6 Other adverse effects:**

**Water Hazard Classes (WGK): No data available.**

**12.7 Additional information: Do not allow this product to be released to the environment without proper treatment.**

## Section 13 - Disposal Considerations

**13.1 Waste treatment methods**

**13.1.1 Product/Packaging disposal: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Disposal should be in accordance with applicable regional, national and local laws and regulations. Contaminated packaging material should be treated equivalent to residual chemical.**

**13.1.2 Waste treatment-relevant information: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.**

**13.1.3 Sewage disposal-relevant information: Avoid dispersal of spilled material and run off and contact with soil, waterways, drains and sewers.**

**13.1.4 other disposal recommendations: Refer to Section 7 - Handling and Storage and Section 8 - Exposure Controls/Personal Protection for additional handling information and protection of employees.**

## Section 14 - Transport Information

**Air transport (ICAO-IATA / DGR 57<sup>th</sup>)**

**UN Number: UN 3480**

**UN Proper Shipping Name: Lithium ion batteries**

**Transport hazard class: 9**

**Subsidiary risk: N/A**

**Packaging group: N/A**

**Packaging Sign:**



**Other Information: The UN38.3 test passed, the report: Pony Testing Group Shanghai Co., Ltd. Report No.: BZIPDUUZ15767521**

**Special precautions for user:**

Special provisions: A88, A99, A154, A164, A183

Cargo Only Packing Instructions: PI965

Cargo Only Maximum Qty / Pack: See PI965

Passenger and Cargo Packing Instructions: PI965

Passenger and Cargo Maximum Qty / Pack: See PI965

Passenger and Cargo Limited Quantity Packing Instructions: Forbidden

Passenger and Cargo Limited Maximum Qty / Pack: Forbidden

**Marine Pollutant (Y/N): No.**

**Sea transport (IMDG CODE 37-14 edition)**

**UN Number: UN 3480**

**UN Proper Shipping Name: LITHIUM ION BATTERIES**

**Transport hazard class: 9**

**Subsidiary risk: N/A**

**Packaging group: N/A**

**Packaging Sign:**



**Other Information: The UN38.3 test passed, the report: Pony Testing Group Shanghai Co., Ltd. Report No.: BZIPDUUZ15767521**

**Special precautions for user:**

Special provisions: 230, 310, 348

**Marine Pollutant (Y/N): No.**

**Land transport (TDG)**

**UN Number: UN 3480**

**UN Proper Shipping Name: Lithium ion batteries**

**Transport hazard class: 9**

**Subsidiary risk: N/A**

**Packaging group: II**



Packaging Sign:



**Other Information: The UN38.3 test passed, the report: Pony Testing Group Shanghai Co., Ltd. Report No.: BZIPDUUZ15767521**

**Special precautions for user: N/A**

**Marine Pollutant (Y/N): No**

## Section 15 - Regulatory Information

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

**Regulatory information: Reference to the local, national, US, EU, CA and international regulations.**

CAS No.	TSCA	IECSC	EINECS/ ELINCS/NLP	DSL/NDSL
15365-14-7	Listed	Unlisted	Listed	Listed in DSL
7782-42-5	Listed	Listed	Listed	Listed in DSL
96-49-1	Listed	Listed	Listed	Listed in DSL
616-38-6	Listed	Listed	Listed	Listed in DSL
623-53-0	Listed	Listed	Unlisted	Listed in NDSL
21324-40-3	Listed	Listed	Listed	Listed in NDSL
108-32-7	Listed	Listed	Listed	Listed in DSL
7440-50-8	Listed	Listed	Listed	Listed in DSL
7429-90-5	Listed	Listed	Listed	Listed in DSL
9002-86-2	Listed	Listed	Unlisted	Listed in DSL
9003-07-0	Listed	Listed	Unlisted	Listed in DSL
7440-02-0	Listed	Listed	Listed	Listed in DSL

**15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.**

## Section 16 - Additional Information

**Issue Time: 2015-12-29**

**Issue Department: Technical department**

**Data review unit: /**

**Modification record: /**

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

**Other Information:**

Xi: Irritating.

R 36/37/38: Irritating to eyes, respiratory system and skin.

CAS: (Chemical Abstracts Service);

EC: (European Commission);

ACGIH: (American Conference of Governmental Industrial Hygienists);

NIOSH: (US National Institute for Occupational Safety and Health);

OSHA: (US Occupational Safety and Health);

TLV: (Threshold Limit Value)

TWA: (Time Weighted Average);

STEL: (Short Term Exposure Limit);

PEL: (Permissible Exposure Level);

REL: (Recommended Exposure Limit);

PC-STEL: (Permissible concentration-time weighted average);

PC-TWA: (Permissible concentration-short time exposure limit);

LC50: (Lethal concentration, 50 percent kill);

LD50: (Lethal dose, 50 percent kill);

IARC: (International Agency for Research on Cancer);

EC50: (Median effective concentration);

BCF: (Bioconcentration Factor);

BOD: (Biochemical oxygen demand);



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NOEC: (No observed effect concentration);

NTP: (US National Toxicology Program);

RTECS: (Registry of Toxic Effects of Chemical Substances);

IATA: (International Air Transport Association);

IMDG: (International Maritime Dangerous Goods);

TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations);

TOC: (Total Organic Carbon);

TSCA: (Toxic Substances Control Act of USA);

DSL: (the Domestic Substances List of Canada);

NDSL: (the Non-domestic Substances List of Canada)

\*\*\*End of report \*\*\*

## **Safety Data Sheet (SDS)**

according to Annex II of REACH (EC 1907/2006),  
CLP(EC)No1272/2008

Rechargeable Lithium Iron Phosphate Battery

(12.8V, 170Ah, 2176Wh)

### **Section 1 - Identification of the substance/mixture and of the company/undertaking**

#### **1.1 Product identifier:**

**Sample Name:** Rechargeable Lithium Iron Phosphate Battery (12.8V,  
170Ah, 2176Wh)

**Trade Name:** IFM12-1700E1

**Sample Code:** N/A

**Physical state:** Battery

**Color:** Blue cuboid

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

**Relevant identified uses:** N/A

**Uses advised against:** N/A

**Reason why uses advised against:** N/A

#### **1.3 Details of the supplier of the safety data sheet:**

**Manufacturer/Supplier:** O'CELL New Energy Technology CO.,LTD.

**Street address:** O'CELL Industry Zone, Yayuan Road, Xiaoting District,  
Yichang City, Hubei Province, 443007, P.R.China

**Telephone number:** +86 18771819730

**FAX:** +86 717-6516633

**E-mail address:** [qc02@ocelltech.com](mailto:qc02@ocelltech.com)

**National contact:** N/A

#### **1.4 Emergency telephone number:**

**In case of an emergency, please contact:** +86 717-6344848

**Other comments:** N/A



## Section 2 - Hazards Identification

### 2.1 Classification of the substance or mixture:

**2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP):**  
None.

**2.1.2 Classification according to Directive 67/548/EEC:** None.

**2.1.3 Additional information:** Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature ( $>150^{\circ}\text{C}$  ( $302^{\circ}\text{F}$ )), when damaged or abused (e.g., mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect. Burning batteries can ignite other batteries in close proximity.

**2.2 Label elements:** None.

Supplemental Hazard information (EU): Not applicable.

**2.3 Other hazards:** The product does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

The product should not present a health hazard when used under reasonable conditions. If contact with battery electrolyte may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Burning batteries may produce toxic hydrogen fluoride gas. Fumes may cause dizziness or suffocation.

**Environmental hazards:** If the battery is discarded into the environment, the harmful contents inside may be dangerous.

## Section 3 – Composition/Information on Ingredients

**General chemical description:** The chemical product is a mixture.

**Composition, Information on Ingredients:**

Chemical Name	CAS No.	Percent (weight)	EC#	Classification according to Regulation (EC) No 1272/2008 (CLP).

<b>LiFePO4</b>	<b>15365-14-7</b>	<b>30-40</b>	<b>476-700-9</b>	<b>N/A</b>
<b>Graphite</b>	<b>7782-42-5</b>	<b>10-20</b>	<b>231-955-3</b>	<b>N/A</b>
<b>ethylene carbonate</b>	<b>96-49-1</b>	<b>10-15</b>	<b>202-510-0</b>	<b>N/A</b>
<b>dimethyl carbonate</b>	<b>616-38-6</b>		<b>210-478-4</b>	<b>Flam. Liq. 2</b>
<b>Carbonic acid, ethyl methyl ester</b>	<b>623-53-0</b>		<b>*613-014-2</b>	<b>N/A</b>
<b>lithium hexafluorophosphate(1-)</b>	<b>21324-40-3</b>		<b>244-334-7</b>	<b>N/A</b>
<b>propylene carbonate</b>	<b>108-32-7</b>		<b>203-572-1</b>	<b>Eye Irrit. 2</b>
<b>copper</b>	<b>7440-50-8</b>	<b>5-10</b>	<b>231-159-6</b>	<b>N/A</b>
<b>aluminium</b>	<b>7429-90-5</b>	<b>2-10</b>	<b>231-072-3</b>	<b>Pyr. Sol. 1 Water-react. 2</b>
<b>Ethene, chloro-, homopolymer</b>	<b>9002-86-2</b>	<b>2-5</b>	<b>*618-338-8</b>	<b>N/A</b>
<b>1-Propene, homopolymer</b>	<b>9003-07-0</b>	<b>2-5</b>	<b>*618-352-4</b>	<b>N/A</b>
<b>Paper</b>	<b>N/A</b>	<b>2-5</b>	<b>N/A</b>	<b>N/A</b>
<b>Nickel</b>	<b>7440-02-0</b>	<b>1-5</b>	<b>231-111-4</b>	<b>Skin Sens. 1 Carc. 2 STOT RE 1 Aquatic Chronic 3</b>

**Note:** The symbol '\*' means the number is a temporary list number.

## Section 4 - First Aid Measures

### 4.1 Description of first aid measures

**General notes:** No effect under routine handling and use. If exposure to the internal materials within batteries due to damaged outer metal casing, the following actions are recommended.



**Following inhalation:** If inhaled, remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical aid immediately if indisposed symptoms occur.

**Following skin contact:** If skin irritation occur, remove contaminated clothing and shoes immediately and flush skin with plenty of water and soap. Get medical aid immediately if indisposed symptoms occur.

**Following eye contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Do not rubbing eyes with hand. Check for and remove any contact lenses if easily possible. Get medical aid immediately.

**Following ingestion:** Ingestion of this material is unlikely. If it does occur and the injured is fully conscious: DO NOT induce vomiting, wash mouth out with water, then give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Self-protection of first-aid:** Use proper personal protective equipment as indicated in Section 8.

**4.2 Most important symptoms and effects, both acute and delayed:** See Section 11 for more information.

**4.3 Indication of any immediate medical attention and special treatment needed:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**Extinguishing media:**

**Suitable extinguishing media:** DRY chemical, CO<sub>2</sub>, water spray or regular foam.

**Unsuitable extinguishing media:** No data available.

**Specific Hazards arising from the chemical:** Battery can be overheated by an external source or by internal shorting and develop metal hydroxide mist. In fire situations fumes containing lithium, cobalt and aluminium may evolved. Toxic vapor may release in case of fire. Thermal shock may cause battery case to crack open. Containers may explode when heated. Firefighting water runoff and dilution water may be toxic and



**corrosive and may cause adverse environmental impacts. On some bad using conditions (e.g., high over charge, inverse charge, external short circuit) and in case of a bad functioning, some electrolyte can be removed from the battery by the security vent. Exposure to the ingredients contained within the battery pack could be harmful under some circumstances.**

**Specific protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. If rail car trailer is involved in a fire, isolate for 500meters in all directions. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Move containers from fire area if this can be done without risk. Prevent run off from fire control dilution from entering streams or drinking water supply.**

## Section 6 - Accidental Release Measures

### **6.1 Personal precautions, protective equipment and emergency procedures:**

#### **6.1.1 For non-emergency personnel:**

**Protective equipment: Use proper personal protective equipment as indicated in Section 8.**

**Emergency procedures: In case of leakage, personnel must evacuate immediately. DO NOT pass through the spilled area. Remove all sources of ignition or heat. Keep unnecessary and unprotected personnel from entering. Review Section 5 and Section 7 sections before proceeding with clean-up.**

**6.1.2 For emergency responders: Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition or heat.**

**6.2 Environmental precautions: Avoid dispersal of spilt material and run off and contact with soil, waterways, drains and sewers.**

### **6.3 Methods and material for containment and cleaning up:**

**6.3.1 For containment: Stop leak if safe to do so. Move containers from spill area.**

**6.3.2 For cleaning up: Leaking batteries and contaminated absorbent material should be placed in metal containers.**



**6.3.3 Other information: Contaminated floor may be flushed with water into chemical sewer.**

**6.4 Reference to other sections: Use proper personal protective equipment as indicated in Section 8. And see Section 13 for disposal information.**

## Section 7 - Handling and storage

### **7.1 Precautions for safe handling:**

**Protective measures:** In the event of battery case breakage, avoid contact with eyes, skin and clothing. Remove contaminated clothing and shoes. Wash clothing and shoes thoroughly before reuse.

**Measures to prevent fire:** Ensure good local exhaust ventilation. Keep container away from any sources of ignition or heat (e.g. open flames, hot surfaces). The work area should be equipped with the corresponding species and quantity of fire equipment and leakage emergency equipment.

**Measures to prevent aerosol and dust generation:** Ensure good local exhaust ventilation.

**Measures to protect the environment:** Do not allow this product to be released to the environment without proper treatment.

**Advice on general occupational hygiene:** Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

### **7.2 Conditions for safe storage, including any incompatibilities:**

**Technical measures and storage conditions:** Ensure good local exhaust ventilation. Treat carefully, avoid physical damage to containers. The storage area should be equipped with the corresponding species and quantity of fire equipment and leakage emergency equipment.

**Packing materials:** N/A

**Requirements for storage rooms and vessels:** Store in a cool and dry area, but prevent condensation on cell or battery terminals. High temperature may damage the performance of the battery, cause leaking or rusting. Protect from physical damage and short circuits. To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery. Do not allow metal objects to simultaneously contact both positive and negative terminal of batteries. Do not stack

**battery directly on another battery. Do not store batteries on electrically conductive surfaces.**

### 7.3 Specific end use(s):

**Recommendations: N/A**

**Industrial sector specific solutions: N/A**

## Section 8 - Exposure Controls, Personal Protection

### 8.1 Control parameters:

#### Exposure Limit:

CAS#	ACGIH	NIOSH	OSHA
15365-14-7	N/A	N/A	N/A
7782-42-5	TLV-TWA 2 mg/ m <sup>3</sup> (respirable)	REL-TWA 2.5mg/m <sup>3</sup> (resp) IDLH-1250 mg/m <sup>3</sup>	PEL-TWA 15 mppcf
96-49-1	N/A	N/A	N/A
616-38-6	N/A	N/A	N/A
623-53-0	N/A	N/A	N/A
21324-40-3	N/A	N/A	N/A
108-32-7	N/A	N/A	N/A
7440-50-8	TLV-TWA 0.2mg(Cu)/m <sup>3</sup> (fume) TLV-TWA 1mg(Cu)/m <sup>3</sup> (dust and mist)	REL-TWA 1mg/m <sup>3</sup> (as Cu, except Copper fume) IDLH-100 mg/m <sup>3</sup> (as Cu)	PEL-TWA 1mg/m <sup>3</sup> (as Cu, except Copper fume)
7429-90-5	TLV-TWA 10 mg/ m <sup>3</sup> (dust) TLV-TWA 5 mg/ m <sup>3</sup> (pyro powders)	REL-TWA 10 mg/ m <sup>3</sup> (total) REL-TWA 5 mg/ m <sup>3</sup> (resp)	PEL-TWA 15 mg/ m <sup>3</sup> (total) PEL-TWA 5 mg/ m <sup>3</sup> (resp)
9002-86-2	N/A	N/A	N/A
9003-07-0	N/A	N/A	N/A



7440-02-0	<b>TLV-TWA</b> <b>1.5mg/ m<sup>3</sup> (</b> <b>inhalable)</b>	<b>Ca REL-TWA 0.015</b> <b>mg/ m<sup>3</sup></b> <b>IDLH- Ca [10 mg/</b> <b>m<sup>3</sup> (as Ni)]</b>	<b>PEL-TWA 1mg/ m<sup>3</sup></b>
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**Information on monitoring procedures: No information found.**

## **8.2 Exposure controls:**

**8.2.1 Appropriate engineering controls:** General room ventilation is sufficient during normal use and handling. Do not install these batteries in sealed, unventilated areas. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Keep away heat and fire.

### **8.2.2 Personal protection equipment:**

**8.2.2.1 Eye and face protection:** No special requirement under normal use. Use appropriate safety glasses when there is the risk of splash.

#### **8.2.2.2 Skin protection:**

**Hand protection:** No special requirement under normal use. In the event of battery case breakage, should be wear appropriate safety gloves.

**Other skin protection:** No special requirement under normal use. It is recommended to wear appropriate protective clothing when the battery case is broken.

**8.2.2.3 Respiratory protection:** No special requirement under normal use. An appropriate respirator or mask should be used whenever workplace conditions warrant a respirator's use. A full face positive pressure supplied-air respirator or a self contained breathing apparatus should be used when fire.

**8.2.2.4 Other protection:** To maintain good health habits.

**8.2.3 Environmental exposure controls:** Do not allow this product to be released to the environment without proper treatment.

## **Section 9 - Physical and Chemical Properties**

### **9.1 Information on basic physical and chemical properties:**

**Appearance:** Blue cuboid battery.

**Odor:** odorless.

**Odor threshold:** N/A

**pH:** N/A