

# Material Safety Data Sheet

Issuing Date 31-Aug-2012

Revision Date 11-Oct-2013

Revision Number 2

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** R03P AAA

**Recommended Use** Carbon Zinc Battery. Alkaline battery.

### Supplier Address

zhongshan sunrise electronics co., ltd.  
No.173 XINGGANG MID-ROAD  
GANGKOU TOWN ZHONGSHAN CITY  
ZHONGSHAN  
GUANGDONG  
528447  
CN  
Phone:86-013809681851  
Fax:86-760-88481819  
Contact:RUIYUAN JIA  
Email:sunrise@greatcell.com.cn  
Contact Phone86-760-88409128

## 2. HAZARDS IDENTIFICATION

### WARNING!

### Emergency Overview

In case of rupture:  
Harmful if swallowed  
Harmful by inhalation  
Irritating to eyes  
Irritating to skin

Product dust may be irritating to eyes, skin and respiratory system

**Appearance** Solid

**Physical State** Solid.

**Odor**

### OSHA Regulatory Status

This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

### Potential Health Effects

#### Principle Routes of Exposure

Eye contact. Skin contact.

#### Acute Toxicity

##### Eyes

In case of rupture: Irritating to eyes.

##### Skin

In case of rupture: Irritating to skin.

##### Inhalation

In case of rupture: Harmful by inhalation. May cause irritation of respiratory tract.

##### Ingestion

In case of rupture: Harmful if swallowed. Ingestion may cause irritation to mucous membranes.

#### Chronic Effects

No known effect based on information supplied.

#### Aggravated Medical Conditions

Pre-existing eye disorders. Skin disorders. Respiratory disorders.

**Environmental Hazard** See Section 12 for additional Ecological Information. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Zinc	7440-66-6	30-60
Manganese dioxide	1313-13-9	15-40
Carbon	7440-44-0	15-40
Zinc chloride	7646-85-7	5-10
Iron	7439-89-6	1 - 5
Copper	7440-50-8	1 - 5

### 4. FIRST AID MEASURES

<b>General Advice</b>	First aid is upon rupture of sealed battery.
<b>Eye Contact</b>	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
<b>Inhalation</b>	Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If symptoms persist, call a physician.
<b>Ingestion</b>	Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.
<b>Notes to Physician</b>	Treat symptomatically.
<b>Protection of First-aiders</b>	Use personal protective equipment.

### 5. FIRE-FIGHTING MEASURES

<b>Flammable Properties</b>	Not flammable.
<b>Flash Point</b>	Not determined.
<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Hazardous Combustion Products</b>	Carbon oxides.
<b>Explosion Data</b>	
<b>Sensitivity to Mechanical Impact</b>	No.
<b>Sensitivity to Static Discharge</b>	No.
<b>Specific Hazards Arising from the Chemical</b>	Thermal decomposition can lead to release of irritating gases and vapors.

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

<b>NFPA</b>	<b>Health Hazard 0</b>	<b>Flammability 0</b>	<b>Stability 0</b>	<b>Physical and Chemical Hazards -</b>
-------------	------------------------	-----------------------	--------------------	--

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Use personal protective equipment. Avoid contact with the skin and the eyes. Avoid breathing dust.
<b>Environmental Precautions</b>	Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains.
<b>Methods for Containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for Cleaning Up</b>	In case of rupture: Use personal protective equipment. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Pick up and transfer to properly labeled containers. Avoid dust formation. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

<b>Handling</b>	In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes and clothing.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.2 mg/m <sup>3</sup> Mn	(vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 500 mg/m <sup>3</sup> Mn TWA: 1 mg/m <sup>3</sup> Mn STEL: 3 mg/m <sup>3</sup> Mn
Zinc chloride 7646-85-7	STEL: 2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> fume	TWA: 1 mg/m <sup>3</sup> fume (vacated) TWA: 1 mg/m <sup>3</sup> fume (vacated) STEL: 2 mg/m <sup>3</sup> fume	IDLH: 50 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> fume STEL: 2 mg/m <sup>3</sup> fume
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

<b>Other Exposure Guidelines</b>	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).
<b>Engineering Measures</b>	Showers Eyewash stations Ventilation systems
<b>Personal Protective Equipment</b>	
<b>Eye/Face Protection</b>	If splashes are likely to occur, wear: Tightly fitting safety goggles.
<b>Skin and Body Protection</b>	Risk of contact: Protective gloves.
<b>Respiratory Protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Solid.	<b>Odor</b>	
<b>Odor Threshold</b>	No information available	<b>Physical State</b>	Solid
<b>pH</b>	No information available		
<b>Flash Point</b>	No information available.	<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available	<b>Boiling Point/Range</b>	No information available
<b>Melting Point/Range</b>	No information available		
<b>Flammability Limits in Air</b>	No information available	<b>Explosion Limits</b>	No information available
<b>Water Solubility</b>	Partly soluble	<b>Solubility</b>	No information available
<b>Evaporation Rate</b>	No information available	<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available	<b>Partition Coefficient: n-octanol/water</b>	

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	Stable under recommended storage conditions.
<b>Incompatible Products</b>	None known.
<b>Conditions to Avoid</b>	None known.
<b>Hazardous Decomposition Products</b>	Carbon oxides.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

<b>Product Information</b>	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:
<b>Inhalation</b>	Harmful by inhalation.. May cause irritation of respiratory tract..
<b>Eye Contact</b>	Irritating to eyes.
<b>Skin Contact</b>	Irritating to skin.
<b>Ingestion</b>	Harmful if swallowed.. Ingestion may cause irritation to mucous membranes..

### Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese dioxide	= 9000 mg/kg ( Rat )	-	-
Iron	= 984 mg/kg ( Rat )	-	-
Carbon	> 10000 mg/kg ( Rat )	-	-
Zinc chloride	= 350 mg/kg ( Rat )	-	-

### Chronic Toxicity

<b>Target Organ Effects</b>	Eyes. Respiratory system. Skin.
-----------------------------	---------------------------------

## 12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

### Ecotoxicity

The environmental impact of this product has not been fully investigated. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Zinc	EC50: 0.09 - 0.125 mg/L (72 h static) <i>Pseudokirchneriella subcapitata</i> EC50: 0.11 - 0.271 mg/L (96 h static) <i>Pseudokirchneriella subcapitata</i>	LC50: 2.16-3.05 mg/L (96 h flow-through) <i>Pimephales promelas</i> LC50: 7.8 mg/L (96 h static) <i>Cyprinus carpio</i> LC50: 0.45 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 30 mg/L (96 h ) <i>Cyprinus carpio</i> LC50: 0.59 mg/L (96 h semi-static) <i>Oncorhynchus mykiss</i> LC50: 0.41 mg/L (96 h static) <i>Oncorhynchus mykiss</i> LC50: 3.5 mg/L (96 h static) <i>Lepomis macrochirus</i> LC50: 0.211-0.269 mg/L (96 h semi-static) <i>Pimephales promelas</i> LC50: 0.24 mg/L (96 h flow-through) <i>Oncorhynchus mykiss</i> LC50: 2.66 mg/L (96 h static) <i>Pimephales promelas</i>		EC50: 0.139 - 0.908 mg/L (48 h Static) <i>Daphnia magna</i>
Iron		LC50: 0.56 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 13.6 mg/L (96 h static) <i>Morone saxatilis</i>		
Copper	EC50: 0.031 - 0.054 mg/L (96 h static) <i>Pseudokirchneriella subcapitata</i> EC50: 0.0426 - 0.0535 mg/L (72 h static) <i>Pseudokirchneriella subcapitata</i>	LC50: 1.25 mg/L (96 h static) <i>Lepomis macrochirus</i> LC50: 0.112 mg/L (96 h flow-through) <i>Poecilia reticulata</i> LC50: 0.8 mg/L (96 h static) <i>Cyprinus carpio</i> LC50: 0.3 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 0.052 mg/L (96 h flow-through) <i>Oncorhynchus mykiss</i> LC50: 0.0068 - 0.0156 mg/L (96 h ) <i>Pimephales promelas</i> LC50: 0.2 mg/L (96 h flow-through) <i>Pimephales promelas</i> LC50: < 0.3 mg/L (96 h static) <i>Pimephales promelas</i>		EC50: 0.03 mg/L (48 h Static) <i>Daphnia magna</i>

Chemical Name	Log Pow
Manganese dioxide	0

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements. Dispose of in accordance with local regulations

**Contaminated Packaging** Dispose of in accordance with local regulations.

**California Hazardous Waste Codes** 181

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California EHW	California Carc	California Hazardous Waste	California Waste - Part 2
Zinc			Ignitable powder	STLC (for PBTs): 250 mg/L TTLC (for PBTs): 5000 mg/kg
Zinc chloride			Toxic Corrosive	STLC (for PBTs): 250 mg/L TTLC (for PBTs): 5000 mg/kg
Copper			Toxic	STLC (for PBTs): 25 mg/L TTLC (for PBTs): 2500 mg/kg

### 14. TRANSPORT INFORMATION

**DOT** NOT REGULATED

**TDG** Not regulated

**MEX** Not regulated

**ICAO** Not regulated

**IATA** Not regulated

**IMDG/IMO** Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

TSCA Complies  
 DSL Not determined

### U.S. Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Zinc	7440-66-6	30-60	1.0
Manganese dioxide	1313-13-9	15-40	1.0
Zinc chloride	7646-85-7	5-10	1.0
Copper	7440-50-8	1 - 5	1.0

#### **SARA 311/312 Hazard Categories**

Acute Health Hazard No  
 Chronic Health Hazard No  
 Fire Hazard No  
 Sudden Release of Pressure Hazard No  
 Reactive Hazard No

#### **Clean Water Act**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc		X	X	
Zinc chloride	1000 lb	X		X
Copper		X	X	

#### **Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Manganese dioxide	1313-13-9	15-40				

#### **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Zinc	1000 lb	
Zinc chloride	1000 lb	
Copper	5000 lb	

### U.S. State Regulations

#### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

### U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Manganese dioxide			X	X	X
Carbon			X		
Copper	X	X	X	X	X
Zinc	X	X	X		X
Zinc chloride	X	X	X		X

### International Regulations

#### Mexico - Grade

No information available.

Chemical Name	Carcinogen Status	Exposure Limits
Manganese dioxide		Mexico: TWA= 0.2 mg/m <sup>3</sup>
Carbon		Mexico: TWA 2 mg/m <sup>3</sup>
Copper		Mexico: TWA= 1 mg/m <sup>3</sup> Mexico: TWA= 0.2 mg/m <sup>3</sup> Mexico: STEL= 2 mg/m <sup>3</sup>
Zinc chloride		Mexico: TWA 1 mg/m <sup>3</sup> Mexico: STEL 2 mg/m <sup>3</sup>

#### Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

#### WHMIS Hazard Class

Non-controlled

Chemical Name	NPRI
Manganese dioxide	X
Zinc	X
Zinc chloride	X

#### Legend

NPRI - National Pollutant Release Inventory

## 16. OTHER INFORMATION

**Prepared By** Product Stewardship  
23 British American Blvd.  
Latham, NY 12110  
1-800-572-6501

**Issuing Date** 31-Aug-2012

**Revision Date** 11-Oct-2013

**Revision Note** No information available

#### General Disclaimer

The information provided in this 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

**End of Safety Data Sheet**