

# SAFETY DATA SHEET

Revision Number 1

Issuing Date No data available

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product identifier

**Product Name** Lithium Metal Battery**Model Name** 3V-CR2025

### Other means of identification

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended Use** Lithium Primary/Metal Batteries**Uses advised against** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** ZHONGSHAN KEZHUOER ELECTRONIC CO.,LTD.**Supplier Address** A block,NO.60,Dongfu four road,Dongfeng district,Zhongshan city,Guangdong  
China  
528425**Supplier Phone Number** Phone: +860757-28179133  
Contact Phone : +860757-28179133**Supplier Email** xing\_heng001@163.com

### Emergency telephone number

## 2. HAZARDS IDENTIFICATION

### Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). 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.

Carcinogenicity	Category 1A
Serious eye damage/eye irritation	Category 1
Skin corrosion/irritation	Category 2
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Acute toxicity(Oral)	Category 3
Acute Inhalation(Gases)	Category 2
Acute Inhalation(Dusts/Mists)	Category 2
Acute toxicity - Inhalation (Vapors)	Category 2
Reproductive Toxicity	Category 1A

**GHS Label elements, including precautionary statements****Emergency Overview  
Danger****Signal word****Hazard Statements**

Toxic if swallowed  
 Fatal if inhaled  
 Causes skin irritation  
 Causes serious eye damage  
 May cause an allergic skin reaction  
 May cause cancer  
 May damage fertility or the unborn child  
 May cause respiratory irritation. May cause drowsiness or dizziness



This is a battery. In case of rupture: the above hazards exist

**Appearance**

Silver

**Physical State**

Solid

**Odor**

Odorless

**Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Use only outdoors or in a well-ventilated area  
 Contaminated work clothing should not be allowed out of the workplace  
 Wear protective gloves  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Wear eye/face protection

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention  
 Specific treatment (see supplemental first aid instructions on this label)

**Eyes**

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

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
 Take off contaminated clothing and wash before reuse  
 If skin irritation or rash occurs: Get medical advice/attention

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Not applicable

**Unknown Toxicity****Other information**

Very toxic to aquatic life with long lasting effects  
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons

#### **Interactions with Other Chemicals**

Use of alcoholic beverages may enhance toxic effects.

### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Chemical Name</b>	<b>CAS No.</b>	<b>weight %</b>
Stainless steel	12597-68-1	55.4
Polypropylene	9003-07-0	3.4
Manganese Dioxide	1313-13-9	26.2
Lithium	7439-93-2	1.7
Perchloric acid, lithium salt	7791-03-9	2.1
Polytetrafluoroethylene	9002-84-0	0.2
Graphite	7782-42-5	2.5
Propylene Carbonate	108-32-7	4.5
Ethylene glycol dimethyl ether	110-71-4	4

### **4. FIRST AID MEASURES**

#### **First aid measures**

##### **General Advice**

First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance.

##### **Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

##### **Skin Contact**

Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.

##### **Inhalation**

Remove to fresh air. If symptoms persist, call a physician. Get medical attention immediately if symptoms occur.

##### **Ingestion**

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

##### **Self-protection of the first aider**

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

#### **Most important symptoms and effects, both acute and delayed**

##### **Most Important Symptoms and Effects**

Coughing and/ or wheezing. Itching

#### **Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** May cause sensitization of susceptible persons. Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media

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

### Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient

### Specific Hazards Arising from the Chemical

Product is or contains a sensitizer. May cause sensitization by skin contact.

**Uniform Fire Code**      Sensitizer: Solid

### Hazardous Combustion Products

Carbon Oxides

### Explosion Data

**Sensitivity to Mechanical Impact**      **No.**

**Sensitivity to Static Discharge**      **No.**

### 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.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions**      Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak

**Other Information**      Refer to protective measures listed in Sections 7 and 8.

### Environmental Precautions

**Environmental Precautions**      Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

**Methods for Containment**      Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**      Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Handling**      In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing.

### Conditions for safe storage, including any incompatibilities

**Storage**      Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Products Strong acids. Strong oxidizing agents. Strong bases.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.02 mg/m <sup>3</sup> Mn TWA: 0.1 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
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Stainless steel 12597-68-1	STEL: 10 mg/m <sup>3</sup> Zr TWA: 0.05 mg/m <sup>3</sup> Pb TWA: 0.00005 mg/m <sup>3</sup> Be inhalable fraction TWA: 1 mg/m <sup>3</sup> Cu dust and mist TWA: 0.2 mg/m <sup>3</sup> Se TWA: 1 mg/m <sup>3</sup> Y TWA: 5 mg/m <sup>3</sup> Zr TWA: 0.02 mg/m <sup>3</sup> Mn TWA: 0.1 mg/m <sup>3</sup> Mn TWA: 0.5 mg/m <sup>3</sup> Hf S*	TWA: 50 µg/m <sup>3</sup> Pb TWA: 2 µg/m <sup>3</sup> Be TWA: 0.2 mg/m <sup>3</sup> Se TWA: 5 mg/m <sup>3</sup> Zr Action Level: 30 µg/m <sup>3</sup> Pb Poison, See 29 CFR 1910.1025 (vacated) TWA: 2 µg/m <sup>3</sup> Be (vacated) TWA: 0.2 mg/m <sup>3</sup> Se (vacated) TWA: 5 mg/m <sup>3</sup> Zr (vacated) STEL: 25 µg/m <sup>3</sup> 30 min (vacated) STEL: 10 mg/m <sup>3</sup> Zr (vacated) Ceiling: 5 µg/m <sup>3</sup> (vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 µg/m <sup>3</sup> Be Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 4 mg/m <sup>3</sup> Be IDLH: 100 mg/m <sup>3</sup> Cu dust and mist IDLH: 500 mg/m <sup>3</sup> Mn IDLH: 1 mg/m <sup>3</sup> Se IDLH: 500 mg/m <sup>3</sup> Y IDLH: 25 mg/m <sup>3</sup> Zr IDLH: 100 mg/m <sup>3</sup> Pb IDLH: 10 mg/m <sup>3</sup> Ni IDLH: 50 mg/m <sup>3</sup> Hf Ceiling: 0.05 mg/m <sup>3</sup> V dust and fume 15 min Ceiling: 0.0005 mg/m <sup>3</sup> Be TWA: 1 mg/m <sup>3</sup> Cu dust and mist TWA: 1 mg/m <sup>3</sup> Mn TWA: 0.2 mg/m <sup>3</sup> except Selenium hexafluoride Se TWA: 1 mg/m <sup>3</sup> Y TWA: 5 mg/m <sup>3</sup> except Zirconium tetrachloride Zr TWA: 0.050 mg/m <sup>3</sup> Pb TWA: 0.015 mg/m <sup>3</sup> except Nickel carbonyl Ni TWA: 0.5 mg/m <sup>3</sup> Hf STEL: 3 mg/m <sup>3</sup> Mn STEL: 10 mg/m <sup>3</sup> Zr

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

### Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in  
AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15  
for national exposure control parameters

### Appropriate engineering controls

#### Engineering Measures

Showers  
Eyewash stations  
Ventilation systems

### Individual protection measures, such as personal protective equipment

#### Eye/Face Protection

If splashes are likely to occur. Wear safety glasses with side  
shields (or goggles). None required for consumer use.

<b>Skin and Body Protection</b>	Wear protective gloves and protective clothing. Long sleeved clothing. Impervious 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. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Physical and Chemical Properties

<b>Physical State</b>	Solid	<b>Odor</b>	Odorless
<b>Appearance</b>	Silver	<b>Odor Threshold</b>	No information available
<b>Color</b>	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks/</u>
<b>pH</b>	No data available	None known
<b>Melting / freezing point</b>	No data available	None known
<b>Boiling point / boiling range</b>	No data available	None known
<b>Flash Point</b>	No data available	None known
<b>Evaporation Rate</b>	No data available	None known
<b>Flammability (solid, gas)</b>	No data available	None known
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit</b>	No data available	
<b>Lower flammability limit</b>	No data available	
<b>Vapor pressure</b>	No data available	None known
<b>Vapor density</b>	No data available	None known
<b>Specific Gravity</b>	No data available	None known
<b>Water Solubility</b>	No data available	None known
<b>Solubility in other solvents</b>	No data available	None known
<b>Partition coefficient: n-octanol/water</b>	0.0001	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>	No data available	None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	0.0001	None known
<b>Explosive properties</b>	No data available	None known
<b>Oxidizing Properties</b>	No data available	None known

### Other Information

<b>Softening Point</b>	No data available
<b>VOC Content (%)</b>	No data available
<b>Particle Size</b>	No data available
<b>Particle Size Distribution</b>	

## 10. STABILITY AND REACTIVITY

### Reactivity

No data available

### Chemical stability

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

None known based on information supplied.

**Incompatible materials**

Strong acids. Strong oxidizing agents. Strong bases.

**Hazardous Decomposition Products**

Carbon oxides.

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

<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>	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components).
<b>Eye Contact</b>	Specific test data for the substance or mixture is not available. Expected to be and irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation.
<b>Skin Contact</b>	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. Prolonged contact may cause redness and irritation.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed. (based on components).

**Component Information**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide 1313-13-9	= 9000 mg/kg ( Rat )	-	-
Propylene carbonate 108-32-7	= 29000 mg/kg ( Rat )	> 20 mL/kg ( Rabbit )	-
Graphite 7782-42-5	> 10000 mg/kg ( Rat )	-	-

**Information on toxicological effects**

**Symptoms** Erythema (skin redness). May cause redness and tearing of the eyes. Coughing and/ or wheezing. Itching. Rashes Hives.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization** May cause sensitization of susceptible persons. May cause sensitization by skin contact. May cause sensitization by inhalation.

**Mutagenic Effects** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Stainless Steel 12597-68-1	A1 A3	Group 1 Group 2A Group 2B Group 3	Known Reasonably Anticipated	X

***ACGIH (American Conference of Governmental Industrial Hygienists)****A1 - Known Human Carcinogen**A3 - Animal Carcinogen*

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

**NTP (National Toxicology Program)**

Known - Known Carcinogen

**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X- Present

**Reproductive Toxicity****STOT - single exposure****STOT - repeated exposure**

Contains a known or suspected reproductive toxin.

No information available.

Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).

**Chronic Toxicity**

No known effect based on information supplied. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse effects on the bone marrow and blood-forming system. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons.

**Target Organ Effects**

Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Reproductive System. Blood. Central Nervous System (CNS). Central Vascular System (CVS). Kidney. Lungs. Nasal cavities. Cardiovascular system. Systemic Toxicity. Liver.

**Aspiration Hazard**

No information available.

**Numerical measures of toxicity Product Information**

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)

ATEmix (dermal)

ATEmix (inhalation-dust/mist)

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Propylene carbonate 108-32-7	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: > 1000 mg/L (Cyprinus carpio) 96h LC50: = 5300 mg/L (Leuciscus idus)	EC50 > 10000 mg/L 17 h	48h EC50: > 500 mg/L

**Persistence and Degradability**

No information available.

**Bioaccumulation**

Chemical Name	Log Pow
Manganese dioxide 1313-13-9	<0
Propylene carbonate 108-32-7	0.48

**Other adverse effects**

No information available.

**13. DISPOSAL CONSIDERATIONS****Waste treatment methods**



<b>Disposal methods</b>	Should not be released into the environment.
<b>Contaminated Packaging</b>	Dispose of in accordance with federal, state and local regulations.
<b>California Hazardous Waste Codes</b>	141

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

Chemical Name	California Hazardous Waste
Lithium 7439-93-2	Corrosive Ignitable Reactive
Stainless Steel 12597-68-1	Toxic

## 14. TRANSPORT INFORMATION

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

**DOT** NOT REGULATED

**Proper Shipping Name** NON REGULATED  
**Hazard Class** N/A

**TDG** Not regulated  
**MEX** Not regulated  
**CAO** Not regulated  
**IATA** Not regulated

**Proper Shipping Name** Not regulated  
**Hazard Class** N/A

**IMDG/IMO** Not regulated  
**Proper Shipping Name** NON-REGULATED PER SP 188  
**Hazard Class** N/A  
**EmS No.** F-A, S-I

**RID** Not regulated  
**ADR** Not regulated  
**AND** Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

**TSCA** Complies  
**DSL** All components are listed either on the DSL or NDSL.  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

### US 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 %
Manganese dioxide	1313-13-9	26.2	1.0
Ethylene glycol dimethyl ether	110-71-4	4	1.0
Stainless Steel	12597-68-1	55.4	1.0 0.1

#### SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

#### CWA (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
Stainless Steel 12597-68-1		X		

#### CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

#### US State Regulations

##### California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Stainless Steel -12597-68-1	Carcinogen Developmental

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

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Manganese dioxide 1313-13-9			X	X	X
Graphite 7782-42-5	X	X	X		
Ethylene glycol dimethyl ether 110-71-4	X	X	X	X	X
Lithium 7439-93-2	X	X	X		
Polytetrafluoroethylene 9002-84-0			X		

#### International Regulations

##### Mexico

##### National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Manganese dioxide 1313-13-9 (26.2%)		Mexico: TWA= 0.2 mg/m <sup>3</sup>
Graphite 7782-42-5(2.5%)		Mexico: TWA= 2 mg/m <sup>3</sup>
Stainless Steel 12597-68-1(55.4%)	A3 A2	Mexico: TWA 0.15 mg/m <sup>3</sup> Mexico: TWA 0.002 mg/m <sup>3</sup> Mexico: TWA 0.2 mg/m <sup>3</sup> Mexico: TWA 5 mg/m <sup>3</sup>

