

Product name: Lithium Battery CR123A Version: 2.0/EN Revision date: 04/01/2015 Issue date: 08/01/2016

1. Identification	
(a) Product identifier	
Product name	Lithium Battery CR123A
(b) Other means of identi	fication
Product description	Model: CR123A Nominal Voltage:3.0V Typical Capacity:1400mAh Watt-hour:4.2Wh
(c) Recommended use of	the chemical and restrictions on use
Recommended use Uses advised against	Lithium Primary/Metal Batteries No information available.
(d) Details of the supplier	r of the safety data sheet
Supplier Name Supplier Address Supplier Email	JSW Pacific(China)Co.,Ltd No 138.Sanjiang Industry District, HengliTown, Dongguan City, Guangdong province,China yh.wu@jswpac.com.cn
Supplier Phone Number	+86-769-83797666
(e) Emergency telephone +86-769-83797666	number

2. Hazard(s) identification

(a) 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.

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1

(b) GHS Label elements, including precautionary statements



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Emergency Overview Signal word Danger Hazard Statements Causes severe skin burns and eye damage May cause respiratory irritation. May cause drowsiness or dizziness Image: Comparison of the product should not result in exposure to the chemical substance. This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. Appearance Black Physical State Solid Odor No information available

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray Wash face, hands and any exposed skin thoroughly after handling Wear protective gloves/protective clothing/eye protection/face protection Use only outdoors or in a well-ventilated area Do not eat, drink or smoke when using this product

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician Specific treatment (see supplemental first aid instructions on this label) Get medical advice/attention if you feel unwell

Eyes

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

Skin

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse



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Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Immediately call a POISON CENTER or doctor/physician Call a POISON CENTER or doctor/physician if you feel unwell

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

(c) Hazards not otherwise classified (HNOC)

Not applicable

(d) Unknown Toxicity

33% of the mixture consists of ingredient(s) of unknown toxicity

(e) Other information

May be harmful if swallowed May be harmful in contact with skin Very toxic to aquatic life with long lasting effects

(f) Interactions with Other Chemicals

No information available.

3. Composition/information on ingredients

Chemical name	CAS No.	Weight-%	Trade Secret
Manganese dioxide	1313-13-9	40	*
Iron	7439-89-6	35	*
Perchloric acid, lithium salt	7791-03-9	10	*
Propylene carbonate	108-32-7	5	*
Lithium	7439-93-2	8	*
Carbon	7440-44-0	4	*
Lead	7439-92-1	< 0.004	*
Cadmium and compounds (as Cd)	7440-43-9	<0.002	*
Mercury	7439-97-6	<0.0005	*

*The exact percentage (concentration) of composition has been withheld as a trade secret



4. First-aid measures

(a)First aid measures		
(b)General Advice	First aid is upon rupture of sealed battery.	
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.	
Skin contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice.	
Inhalation:	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. 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 or poison control center immediately.	
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).	
(c)Most important symptoms and effects, both acute and delayed		
Moot Important	Durning condition	

Most Important Burning sensation. Symptoms and Effects

(d) Indication of any immediate medical attention and special treatment needed

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. Fire-fighting measures

(a) Suitable Extinguishing Media

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

(b) Unsuitable extinguishing media

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



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(c) Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

(d) Hazardous Combustion Products

Carbon oxides.

(e) Hazardous Combustion Products

Sensitivity to No. Mechanical Impact

Sensitivity to Static No. Discharge

(f) 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

(a)Personal precau	(a)Personal precautions, protective equipment and emergency procedures			
Personal	Attention!Corrosive material. Avoid contact with skin, eyes or clothing. Ensure			
Precautions	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.			
(b)Environmental I				
Environmental	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or			
Precautions	spillage if safe to do so. Should not be released into the environment. Do not allow to			
	enter into soil/subsoil. Prevent product from entering drains.			
(c)Methods and ma	aterial for containment and cleaning up			
Methods for	Prevent further leakage or spillage if safe to do so.			
Containment	Freveni futitiel leakage of spillage it sale to do so.			
Containinent				
Methods for	Pick up and transfer to properly labeled containers.			
cleaning up				
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7. Handling and storage



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(a) Precautions for	or safe handling
Handling	In case of rupture. Handle in accordance with good industrial hygiene and safety practice.Use personal protection equipment. Avoid contact with skin, eyes or clothing.
(b) Conditions fo	r safe storage, including any incompatibilities
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.
Incompatible Products	Acids. Bases. Oxidizing agent.

8. Exposure controls/personal protection

(a)Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 5 mg/m ³	-	
Iron 7439-89-6	TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Fe dust and mist	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Fe dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Perchloric acid, lithium salt 7791-03-9	TWA: 2.5 mg/m ³ F	TWA: 2.5 mg/m ³ F TWA: 2.5 mg/m ³ dust (vacated) TWA: 2.5 mg/m ³	
Lithium 7439-93-2	TWA: 0.02 mg/m ³	-	
Carbon 7440-44-0	TWA: 2 mg/m ³	TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m ³ respirable dust natural (vacated) TWA: 10 mg/m ³ total dust synthetic (vacated) TWA: 5 mg/m ³ respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust
Lead 7439-92-1	TWA: 0.05mg/m ³	TWA: 50 μg/m ³ TWA: 50 μg/m ³ Pb Action Level: 30 μg/m ³ Poison, See 29 CFR 1910.1025 Action Level: 30 μg/m ³ Pb Poison, See	



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Cadmium and compounds (as Cd) 7440-43-9	TWA: 0.01 mg/m ³ TWA: 0.002 mg/m ³ respirable fraction TWA: 0.01 mg/m ³ Cd TWA: 0.002 mg/m ³ Cd respirable fraction	29 CFR 1910.1025 TWA: 0.1 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 5 µg/m ³ Action Level: 2.5 µg/m ³ Action Level: 2.5 µg/m ³ Cd (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m ³ dust applies	IDLH: 9 mg/m ³ dust
Mercury 7439-97-6	TWA: 0.001 mg/m ³	-	

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

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

(b) Appropriate engineering controls

Engineering Showers Measures Eyewash stations Ventilation systems

(c) Individual protection measures, such as personal protective equipment

Eye/Face Protection Face protection shield.

Skin and body Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.

- Respiratory No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
- Hygiene Measures 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. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For



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environmental protection, remove and wash all contaminated protective equipment before re-use.

9. Physical and chemical properties

(a)Physical and Chemical Prope	erties		
Physical State	Solid		
Appearance	Milk-white	e	
Odor	No inform	nation available	
Color	No inform	No information available	
Odor Threshold	No inform	No information available	
(b)Property	(c)Values	(d)Remarks Method	
рН	No data available	None known	
Melting / freezing point	No data available	None known	
Boiling point / boiling range	No data available	None known	
Flash Point	No data available	None known	

None known **Evaporation Rate** No data available Flammability (solid, gas) No data available None known Flammability Limit in Air Upper flammability limit No data available Lower flammability limit No data available Vapor pressure No data available None known Vapor density No data available None known Specific Gravity None known No data available Water Solubility Insoluble in water None known Solubility in other solvents No data available None known Partition coefficient: n-octanol/water No data available Autoignition temperature No data available Decomposition temperature None known No data available Kinematic viscosity No data available None known Dynamic viscosity None known No data available Explosive properties No data available **Oxidizing Properties** No data available

(e)Other Information

Softening Point VOC Content (%) Particle Size Particle Size Distribution

No data available No data available

No data available

10. Stability and reactivity

(a) Reactivity No data available.



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(b) Chemical stability

Stable under recommended storage conditions.

(c) Possibility of hazardous reactions

None under normal processing.

(d) Hazardous Polymerization

Hazardous polymerization does not occur.

(e) Conditions to avoid

Exposure to air or moisture over prolonged periods.

(f) Incompatible materials

Acids. Bases. Oxidizing agent.

(g) Hazardous decomposition products

Carbon oxides.

11.Toxicological information

(a) Information on the likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.
Inhalation	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.
Eye Contact	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.



Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide 1313-13-9	=422 mg/kg (Rat)	-	-
Lithium 7439-93-2	=1000 mg/kg (Rat)	-	-
Lead 7439-92-1	=70 mg/kg (Rat)	-	-
Cadmium and compounds (as Cd)	=2330 mg/kg (Rat)	-	-
Mercury 7439-97-6	=57 mg/kg (Rat)	-	-

(b) Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

(c)Delayed and immediate effects as well as chronic effects from short and long-term exposure

- Sensitization No information available.
- 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
Manganese dioxide 1313-13-9	A3	Group 2B		х
Perchloric acid, lithium salt 7791-03-9	A3	Group 2B		Х
Lead 7439-92-1	A3	Group 2B	Reasonably Anticipated	Х
Cadmium and compounds (as Cd) 7440-43-9	A2	Group 1	Known	Х
Mercury 7439-97-6	A2	Group 1	Known	Х



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ACGIH (American Conference of Governmental Industrial Hygienists) A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive Toxicity	No information available.
STOT-single exposure	No information available.
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).
Chronic Toxicity	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.
Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS). Kidney. Liver. Lungs.
Aspiration Hazard	No information available.

(d) Numerical measures of toxicity Product Information

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

ATEmix (oral)

3,350.00 mg/kg

ATEmix (dermal)

2,010.00 mg/kg (ATE)

12. Ecological information

(a) Ecotoxicity

Very toxic to aquatic life with long lasting effects.



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Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to	Daphnia Magna
			Microorganisms	
				Flea)
Lead		96h LC50: = 0.44 mg/L		48h EC50: = 600
7439-92-1		(Cyprinus carpio) 96h		µg/L
		LC50:= 1.17 mg/L		
		(Oncorhynchus		
		mykiss) 96h		
		LC50: = 1.32 mg/L		
		(Oncorhynchus		
		mykiss)		
Cadmium and		96h LC50: = 0.003 mg/L		48h EC50: = 0.0244
compounds		(Oncorhynchus mykiss) 96h		mg/L
(as Cd)		LC50: = 0.006 mg/L		
7440-43-9		(Oncorhynchus mykiss) 96h		
		LC50: = 0.002 mg/L		
		(Cyprinus carpio) 96h		
		LC50:= 4.26 mg/L (Cyprinus		
		carpio) 96h		
		LC50: = 0.24 mg/L (Cyprinus		
		carpio) 96h		
		LC50: = 0.016 mg/L (Oryzias		
		latipes) 96h		
		LC50: = 21.1 mg/L (Lepomis		
		macrochirus) 96h		
		LC50: 0.0004 - 0.003		
		mg/L (Pimephales promelas)		

(b) Persistence and Degradability

No information available.

(c) Bioaccumulation

No information available.

(d) Other adverse effects

No information available.

13. Disposal considerations

Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Local regulations may be more stringent than regional or national requirements.

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops,



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no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling.

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"
<u>DOT</u>	Not regulated
Proper Shipping Name	Non regulated
Hazard Class	N/A
Emergency Response Guide Number	147
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>ICAO</u>	Not regulated
ΙΑΤΑ	Not regulated
Proper Shipping Name	Non regulated
Hazard Class	N/A
IMDG/IMO	Not regulated
Hazard Class	N/A
EmS-No.	F-A, S-I
RID	Not regulated
ADR	Not regulated



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<u>ADN</u>

Not regulated

15. Regulatory information

OSHA hazard communication standard (29 CFR 1910.1200)

<u>Hazardous</u>

<u>V</u>Non-hazardous

16. Other information, including date of preparation or last revision

(a) Preparation and revision information

Prepared By Shenzhen Beihang Testing Co., Ltd.

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(b) Abbreviations and acronyms

TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL	Domestic Substances List
EINECS:	European Inventory of Existing Commercial chemical Substances
ENCS	Japanese Existing and New Chemical Substances
ECL:	Existing Chemicals List, the Korean chemical inventory.
IECSC:	Inventory of existing chemical substances in China.

(c) 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--