## SDS SAFETY DATA SHEET

According to 2012 OSHA Hazard Communication Standard

(29 CFR 1910.1200)

**Prepared For** : Zigong LoreStar Technology Co. Ltd The 5A workshop of huarong city, no. 219, bancang road, bancang industrial park, zigong city 643000 P. R. China

**Prepared By** : Shenzhen LCS Compliance Testing Laboratory Ltd. 101, 201 Building A and 301 Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, Guangdong, China

Issue Date : 2019.11.26

Report Number

: LCS191108061ASD

Written by: <u>Seven lin</u> Approved by:



SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.

(29 CFR 1910.1200)

REPORT	NO.:	LCS191108061ASD

* The SDS is prepared based client's request.	d on the information provided by client. The cc	ntents and formats of this SDS are revised as per			
	Section 1- Identifi	cation			
(a) Product identifier					
Product name	Rechargeable Li-ion Cell				
(b) Other means of ident	tification				
Product description	Model: LXD 18650-25P3 Nominal Voltage: 3.6V Nominal capacity: 2500mAh Watt-hour: 9.0Wh Weight: 46.9g				
(c) Recommended use o	of the chemical and restrictions on use				
Recommended use	LITHIUM ION BATTERIES				
Uses advised against	No information available.				
(d) Details of the supplie	er of the safety data sheet				
Supplier Name	Zigong LoreStar Technology Co. Ltd				
Supplier Address	The 5A workshop of huarong city, no. 219, bancang road, bancang industrial park, zigong city 643000 P. R. China				
Manufacture Company	Zigong LoreStar Technology Co. Ltd				
Manufacture Address	The 5A workshop of huarong city, no. 2 <sup>2</sup> zigong city 643000 P. R. China	19, bancang road, bancang industrial park,			
Supplier Phone Number	+86-813-8258888				
(e) Emergency telephon	e number				
+86-813-8258888					
	Section 2- Hazards ide	entification			
1910.1200). This produc	t is an article which is a sealed battery a	lazard Communication Standard (29 CFR and as such does not require an MSDS per the zards indicated are for a ruptured battery.			
Reproductive toxicity		Category 2			
Acute toxicity-Oral		Category 3			
Skin corrosion/ irritation		Category 1			
Specific target organ toxic	ity-repeated exposure	Category 1			
(b) GHS Label elements,	including precautionary statements				
<b>- - - -</b>					

**Emergency Overview** 

(29 CFR 1910.1200)

REPORT NO .: LCS191108061ASD

Signal word	Danger
Toxic if swallowed Causes severe skin bur	fertility or the unborn child ns and eye damage ns through prolonged or repeated exposure.
Appearance: No infor	rmation available Physical State: Solid Odor: No information available
P101	If medical advice is needed,,have product containet or label at hand
P201 P202 P260 P264 P270 P280 P308+P313 P301+P310 P321 P330 P301+P330+P331 P303+P361+P353 P363 P304+P340 P310 P305+P351+P338 P314	Obtain special instructions before use.         Do not handle until all safety precautions have been read and understood.         Do not breathe dust/fume/gas/mist/vapours/spray.         Wash thoroughly after handling.         dust/fume/gas/mist/vapours/spray         Wear protective gloves/protective clothing/eye protection/face protection         IF exposed or concerned: Get medical advice/ attention.         IF SWALLOWED: Immediately call a POISON CENTER/doctor/\u2026.         Specific treatment (see on this label).         Rinse mouth.         IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.         IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].         Wash contaminated clothing before reuse.         IF INHALED: Remove person to fresh air and keep comfortable for breathing.         Immediately call a POISON         CENTER/doctor/\u2026         IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.         Get medical advice/attention if you feel unwell.
P405	Store locked up.
P501	Dispose of contents/container to
	vise classified (HNOC)
Not applicable	
(d) Unknown Toxicity	
.,	sists of ingredient(s) of unknown toxicity

(29 CFR 1910.1200)

REPORT NO .: LCS191108061ASD

#### (e) Other information

Very toxic to aquatic life with long lasting effects

#### (f) Interactions with Other Chemicals

No information available.

### Section 3- Composition/information on ingredients

Chemical Name	CAS Number	Weight (%)	Trade Secret
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	39.26	*
Copper	7440-50-8	6.14	*
Graphite	7782-42-5	37.79	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	4.53	*
Aluminum foil	7429-90-5	12.28	*

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

### **Section 4- First-aid measures**

#### Description of first aid measures

- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: If symptoms persist consult doctor.
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed

No further relevant information available.

### **Section 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.

#### (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) 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.

### Section 6- Accidental release measures

### Safety Data Sheet

According to 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) Version: V1.3

REPORT NO .: LCS191108061ASD

#### (a) Personal precautions, protective equipment and emergency procedures

If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate. Avoid skin and eyes contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed with sand, earth or other inert substance and contaminated area should be ventilated meantime.

#### (b) Environment precautions

Do not allow product to reach sewage system or any water source.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers surface or ground water.

#### (c) Methods and material for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

### Section 7- Handling and storage

#### (a) Precautions for safe handling

#### Handling

Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

#### (b) Conditions for safe storage, including any incompatibilities

#### Storage

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

#### **Incompatible Products**

Strong acids. Strong oxidizing agents. Strong bases

### Section 8- Exposure controls/personal protection

#### (a) Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA: 3 mg/m <sup>3</sup> inhalable fraction	TWA: 3.5 mg/m <sup>3</sup> (vacated) TWA: 3.5 mg/m <sup>3</sup>	IDLH: 1750 mg/m <sup>3</sup> TWA: 3.5 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> Graphite in presence of Polycyclic aromatic hydrocarbons PAH
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	TWA: 0.02 mg/m³	-	_
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA:2.5mg/m³ F	TWA:2.5mg/m <sup>3</sup> F TWA:2.5mg/m <sup>3</sup> dust (vacated)TWA:2.5mg/m <sup>3</sup>	
Copper 7440-50-8	TWA:0.2mg/m <sup>3</sup> fume TWA:1mg/m <sup>3</sup> Cu dust and mist	TWA:0.1mg/m <sup>3</sup> fume TWA:1mg/m <sup>3</sup> dust and mist (vacated) TWA:0.1mg/m <sup>3</sup> Cu	IDLH:100mg/m³dust ,fume and mist TWA:1mg/m³dust and mist

		(29 CFR 1		T NO.: LCS191108061ASD			
			dust,fume,mist	TWA:0.1mg/m <sup>3</sup> fume			
Aluminum foil 7429-90-5	TWA:1mg/m³ r	espirable fraction	TWA:15mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable fraction	TWA:10mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable dust			
			(vacated) TWA:15mg/m <sup>3</sup> total dust (vacated) TWA:5mg/m <sup>3</sup> respirable fraction(vacated) TWA:5mg/m <sup>3</sup> AL Aluminum				
			ists - Threshold Limit Value ible Exposure Limits Immediately Dange	erous to Life or Health			
Other Exposure Guidelines			Court of Appeals decision in AF tion 15 for national exposure contended on the second				
(b) Appropriate e	engineering con	rols					
Engineering Measures Ventilation systems							
(c) Individual pro	etection measure	es, such as perso	nal protective equipment				
<b>Eye/Face Protection</b> None required for consumer use. If there is a risk of contact:. Tight sealing safety goggle Face protection shield.							
Skin and body Protection							
Respiratory Protection			eded under normal use condition ienced, ventilation and evacuation				
Hygiene MeasuresHandle in accordance with good industrial hygiene and safety practice. Do not eat, dr 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 environmental protection available.							
	Section 9	)- Physical a	nd chemical proper	ties			
Form		Solid	Solid				
Color		Pink	Pink				
Odor		Not Available	)				
рН		Not Available					
Melting point/free	zing point	Not Available					
Boiling Point and	Boiling range	Not Available					

(29 CFR 1910.1200)

REPORT NO .: LCS191108061ASD

	REPORT NO.: LCS191108061ASD
Flash Point	Not Available
Upper/lower flammability or explosive limits	Not Available
Vapor Pressure	Not Available
Vapor Density	Not Available
Relative density	Not Available
Solubility in Water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available
Evaporation rate	Not Available
Flammability (soil, gas)	Not Available
Viscosity	Not Available
Sect	ion 10- Stability and reactivity
Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat.
Incompatible materials	Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products	Carbon oxides.
Section	n 11 – Toxicological information
Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:
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.

(29 CFR 1910.1200)

#### REPORT NO.: LCS191108061ASD

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.							
Component Information	n								
Chemical Name		Oral LD50		Derm	al LD50	Inhalation LC50			
Graphite 7782-42-5		> 10000 mg/kg ( F	Rat)	> 3 g/kg	(Rabbit)	-			
Information on toxicolo	gical effects	5							
Symptoms		Erythema (sk Itching. Rashe			ause redness	and tearing of the eyes.			
Delayed and immediate	effects as v	vell as chronic	effects f	rom short a	nd long-term	exposure			
Sensitization:	May cause se skin contact.	ensitizatio	n of suscept	ible persons. N	ay cause sensitization by				
Mutagenic Effects:	tagenic Effects:			No information available.					
Carcinogenicity:		The table belo a carcinogen.	low indicates whether each agency has listed any ingredient as						
Chemical Name	AC	GIH	I.A	ARC	NTP	OSHA			
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	,	43	Group 2B			X			
Graphite 7782-42-5		43	Gro	Group 2B		X			
ACGIH (American Conference A3 - Animal Carcinogen IARC (International Agency f Group 2B - Possibly Carcinoge OSHA (Occupational Safety X - Present Reproductive Toxicity	or Research on enic to Humans	Cancer)	US Departn						
STOT - single exposure	•	No information							
STOT - repeated exposure Causes on class Standard			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						
Chronic Toxicity		Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse live effects.				-			
Target Organ Effects						act (GI). Central Vascular system. Systemic			

## Safety Data Sheet

According to 2012 OSHA Hazard Communication Standard

(29 CFR 1910.1200)

		(29 CFR 19	10.1200)	REPOR	T NO.: LCS191108061ASE			
Aspiration Ha	zard	No information av	ailable.					
Numerical me	asures of toxicity Pro	duct Information						
-	values are calculated	based on	ATEmix (	oral):	12,905.00 mg/kg			
chapter 3.1 of the GHS document			ATEmix	(dermal):	10,200.00 mg/kg (ATE)			
	Secti	on 12- Ecol	ogical	information				
Ecological To	xicity	Very toxic to aqua	atic life with	n long lasting effects				
Chemical name	Toxicity to Algae	Toxicity to F	ish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)			
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: $0.0068 - 0.0156$ mg/L (Pimephales promelas) 96h LC50: = $0.112$ mg/L (Poecilia reticulata) 96h LC50: = $0.3$ mg/L (Cyprinus carpio) 96h LC50: = $0.8$ mg/L (Cyprinus carpio) 96h LC50: = $1.25$ mg/L (Lepomis macrochirus) 96h LC50: = $0.052$ mg/L (Oncorhynchus mykiss) 96h LC50: = $0.2$ mg/L (Pimephales promelas) 96h LC50: < $0.3$ mg/L			48h EC50: = 0.03 mg/L			
Graphite 7782-42-5					24h EC50: > 5600 mg/l			
Persistence a	nd Degradability	No information available.						
Bioaccumula	tion	No information available.						
Other adverse	effects	No information avai	lable.					
	Sectio	on 13- Dispo	sal co	nsiderations				
Waste treatme	ent methods							
Disposal meth	nods	regulations (40 C it is mixed with or chemical addition	FR 261). T otherwise s are mad	his material could be comes in contact wi e to this material, or	aste according to Federal ecome a hazardous waste i th a hazardous waste, if if the material is processed ermine whether the altered			

local regulations for additional requirements.

material is a hazardous waste. Consult the appropriate state, regional, or

(29 CFR 1910.1200)

REPORT NO.: LCS191108061AS					
Contaminated Packaging	Disposal should b local laws and reg	e in accordance with applicable regional, national and gulations.			
California Hazardous Waste Co This product contains one or mor		sted with the State of California as a hazardous waste.			
Chemical Nar	ne	California Hazardous Waste			
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3		Тохіс			
Copper 7440-50-8		Тохіс			
Aluminum foil 7429-90-5		Ignitable powder			
Se	ection 14 – Trar	sport information			
UN Number -DOT, IMDG, IATA	UN 3480 & UN 3481				
UN Proper shipping name -DOT, IMDG, IATA	Lithium ion Batteries (Including lithium ion polymer batteries) or ; Lithium ion Batteries contained in equipments (Including lithium ion polymer batteries) or; Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries)				
Transport information	<ul> <li>Rechargeable Li-ion Cell (Sample Model: LXD 18650-25P3) is tested and passed in accordance with UN manual of Tests and Criteria, Part III, subsect 38.3.</li> <li>The transportation of lithium cells and batteries is regulated by the Internation Air Transport Association (According to Section II/ Section IB of PACKING INSTRUCTION 965, or to Section II of PACKING INSTRUCTION 966~967 of IATA GR 60th Edition for transportation), International Civil Aviation Organization, I national Maritime Dangerous Goods Code and the US Department of Transport tion listed in 49 CFR 173.185.</li> <li>Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed wit equipment", or "Lithium batteries contained in equipment" may not be classifie as "Dangerous Goods" when shipped in accordance with "special provision A of IATA-DGR" or "special provision 188 of IMO-IMDG Code"</li> </ul>				
Transport hazard class(es) -DOT, IMDG, IATA	9				
Environmental hazards	Yes <i>(DOT)</i>				
Marine pollutant	Symbol (fish and tree)				
Special precautions for user EMS Number	Warning: Miscellaneou F-A,S-N	is dangerous substances and articles			
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable				
DOT Remarks:	Special marking with the	ne symbol (fish and tree)			
IMDG Limited quantities (LQ) Excepted quantities (EQ)	0 Code: E0 Not permitted as Exce	pted Quantity			

(29 CFR 1910.1200)

Version: V1.3

REPORT NO .: LCS191108061ASD

### Section 15- Regulatory information

	3	ecin	JIII	)- K	egula	liory	mon	lation		
(a) International	nventories									
TSCA	Compli	es.								
DSL	All corr	ponent	ts are li	sted e	ither on	the DSL	or NDS	L.		
(b) US Federal Re	egulations									
SARA 313	(SARA	). This	product	t conta	ains a ch	nemical o	or chemi		subjec	on Act of 1986 at to the reporting Part 372.
Chemical Name		CA	AS No			Weight-%			-	313 – Threshold Values %
Lithium Cobalt Oxi (CoLiO <sub>2</sub> )	de	12190-79-3					15-40			0.1
Copper		744	0-50-8				3-7			1.0
Aluminum foil		742	9-90-5				7-13			1.0
SARA 311/312 Ha		ries								
Acute Health Haza	-		No							
	Chronic Health Hazard No									
Fire Hazard										
Sudden release of pressure hazard No										
Reactive Hazard N										
			ants p I2)	uct contains the following substances which are regulated pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR						
Chemical Name					WA - Toxic CWA - Priority Pollutants Pollutants				C	WA - Hazardous Substances
Copper 7440-50-8					Х					
	CLA		haza	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 N	ame	Haz	ardous R	Subst Qs	tances	nces Extremely Hazardous Substances RQs			RQ	
Copper 7440-50			50	000 lb					5000 lb final RQ 2270 kg final RQ	
(c) US State Regi	ulations									
California Propos	ition 65				This pr	oduct co	ontains th	e following P	ropositi	on 65 chemicals.
С	hemical nam	e			California Proposition 65					
Grap	hite – 7782-	42-5						Carcinogen		
U.S. State Right-to	o-Know Reg	ulatior	IS							
Chemical Name	New J	ersey	Massa	achus	etts	Pennsy	Ivania	Rhode Island		Illinois
Graphite 7782-42-5	x			х		х				х
Lithium Cobalt Ox (CoLiO <sub>2</sub> ) 12190-79-3	ide x	(				х		х		x
Aluminum 7429-90-5	X			х		Х		x		
Copper 7440-50-8	×			х		х		х		х

(29 CFR 1910.1200)

			,		•	REF	PORT NO.: LCS191108061	ASD
(d) Inter	national Regulatior	าร						
Mexico								
National	occupational expos	sure lim	its					
	Component		Carcin	ogen	Status		Exposure Limits	
7	Graphite 782-42-5 (15 - 40)						Mexico: TWA=3.5 mg/m <sup>3</sup>	
	Aluminum 7429-90-5(7 - 13)						Mexico: TWA= 10 mg/m <sup>3</sup>	
Copper Mexico: TWA= 0.2 mg						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>		
Mexico - O	ccupational Exposure Limi	ts - Carciı	nogens					
Canada								
WHMIS I	Hazard Class		Not determined					
		S	ection 16-	Othe	er informati	ion		
NFPA	Health Hazards	1	Flammability	0	Instability	0	Physical and Chemical Hazards	-
HMIS	Health Hazards	2 <sup>*</sup>	Flammability	0	Physical Hazard	0	Personal Protection	Х
Chronic I	Hazard Star Legend *	= Chro	nic Health Hazar	d				
the date storage, informati	mation provided in th of its publication. The transportation, dispos	informa sal and ne spec	ation given is des release and is r ific material des	signec not to signat	l only as a guida be considered a ed and may no	nce fo a warra ot be v	wledge, information and bel r safe handling, use, proces anty or quality specification valid for such material use	ssing, The

\*\*\*\*\*\*\*End of Safety Data Sheet\*\*\*\*\*\*