# SDS SAFETY DATA SHEET

According to 2012 OSHA Hazard Communication Standard

(29 CFR 1910.1200)

Prepared For : - Spracht Item #HS-2050

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Report Number

LCS200918096ASD

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



SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.

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* The SDS is prepared based client's request.	d on the information provided by client. The co	ntents and formats of this SDS are revised as per					
	Section 1- Identifi	cation					
(a) Product identifier							
Product name	Li-ion Battery						
(b) Other means of ident	ification						
Product description	Model: 18650 3S1P Nominal Voltage: 11.1V Nominal capacity: 2000mAh Watt-hour: 22.2Wh Weight: 157.6g						
(c) Recommended use o	f 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	-						
Supplier Address	-						
Manufacture Company	-						
Manufacture Address	-						
Supplier Phone Number	-						
(e) Emergency telephon	e number						
-							
	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						
Emergency Overview							

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

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#### (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	38.56	*
Copper	7440-50-8	6.26	*
Graphite	7782-42-5	37.91	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	4.54	*
Aluminum foil	7429-90-5	12.73	*

"\*" 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

According to 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) Version: V1.4

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(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/m <sup>3</sup> dust ,fume and mist TWA:1mg/m <sup>3</sup> dust and mist

		(29 CFR 19	,					
			dust,fume,mist	TWA:0.1mg/m <sup>3</sup> fume				
				C C				
Aluminum foil	TWA:1m	g/m <sup>3</sup> respirable fraction	TWA:15mg/m <sup>3</sup> total dust	TWA:10mg/m <sup>3</sup> total dust				
7429-90-5			TWA:5mg/m <sup>3</sup> respirable fraction	TWA:5mg/m <sup>3</sup> respirable dust				
			(vacated)	uusi				
			TWA:15mg/m³total dust					
			(vacated) TWA:5mg/m <sup>3</sup>					
			respirable fraction(vacated) TWA:5mg/m <sup>3</sup> AL Aluminum					
		Governmental Industrial Hygien Jealth Administration - Permissi	, , , , , , , , , , , , , , , , , , ,	erous to Life or Health				
Other Exposure			Court of Appeals decision in AF					
Guidelines			tion 15 for national exposure co					
(b) Appropriate e	engineering	controls						
- · · ·	Show							
Engineering Measu	-	vash stations ilation systems						
(c) Individual pro		ž.	nal protective equipment					
Eye/Face Protecti		e required for consumer u protection shield.	mer use. If there is a risk of contact:. Tight sealing safety goggles.					
Skin and body Protection		e required for consumer un ctive clothing.						
Respiratory Protection			eded under normal use conditic ienced, ventilation and evacuati					
Hygiene Measure	or sn reuse prote Regu befol	noke when using this proceed. Avoid contact with skin action. Contaminated work alar cleaning of equipmen be breaks and immediatel ave and wash all contamine	od industrial hygiene and safety duct. Take off contaminated clot , eyes or clothing. Wear suitable k clothing should not be allowed it, work area and clothing is reco y after handling the product. Fo nated protective equipment befo	hing and wash before gloves and eye/face out of the workplace. ommended. Wash hands r environmental protection,				
	Section	on 9- Physical a	nd chemical proper	ties				
Form		Solid	Solid					
Color		Blue	Blue					
Odor		Not Available	Not Available					
рН		Not Available	Not Available					
Melting point/free	zing point	Not Available	Not Available					
Boiling Point and	Boiling ran	ge Not Available	Not Available					

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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.
Sectio	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.

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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 Informatio	n							
Chemical Name		Oral LD50		Derm	al LD50	Inhalation LC	50	
Graphite 7782-42-5		> 10000 mg/kg ( F	Rat )	> 3 g/kę	g(Rabbit)	-		
Information on toxicol	ogical effects	5						
Symptoms		Erythema (sk Itching. Rashe		ss). May ca	ause redness	and tearing of the	eyes.	
Delayed and immediate	e effects as v	vell as chronic	effects f	rom short a	and long-term	exposure		
Sensitization:		May cause se skin contact.	ensitizatio	n of suscept	ible persons. N	ay cause sensitizat	tion by	
Mutagenic Effects:		No information available.						
Carcinogenicity:	The table below indicates whether each agency has listed any ingredient as a carcinogen.							
Chemical Name	AC	GIH IA		RC	NTP	OSHA	L	
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	,	A3 Gr		up 2B		Х		
Graphite 7782-42-5	/	A3 Group 2E		up 2B		X		
ACGIH (American Conference A3 - Animal Carcinogen IARC (International Agency Group 2B - Possibly Carcinoge OSHA (Occupational Safety X - Present	Cancer)		nent of Labor)					
Reproductive Toxicity		No information available.						
STOT - single exposur		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		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. Liver. Cardiovascular system. Systemic Toxicity.						

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Aspiration Ha	azard	No information available.						
Numerical me	easures of toxicity Pro	duct Information						
-	y values are calculated	based on	ATEmix (	oral):	12,905.00 mg/kg			
chapter 3.1 o	f the GHS document		ATEmix	(dermal):	10,200.00 mg/kg (ATE)			
	Secti	on 12- Ecol	ogical	information				
Ecological To	oxicity	Very toxic to aqua	atic life wit	h 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: 0.0 0.0156 mg/L (Pimepl promelas 96h LC50: = 0.1 (Poecilia reticula LC50: = 0.3 r (Cyprinus carpio) 96h LC5 mg/L (Cyprinus 96h LC50: = 1.25 (Lepomis macrochirus) 96h 0.052 mg/ (Oncorhync mykiss) 96h LC5 mg/L (Pimepl promelas 96h LC50: < 0. (Pimephales pro	hales ) 12 mg/L ata) 96h mg/L s carpio) mg/L carpio) mg/L carpio) = 0.2 hus color = 0.2 color		48h EC50: = 0.03 mg/L			
Graphite 7782-42-5					24h EC50: > 5600 mg/L			
Persistence a	and Degradability	No information available.						
Bioaccumulation		No information available.						
Other adverse effects		No information available.						
	Sectio	on 13- Dispo	sal co	nsiderations				
Waste treatm	ent methods							
		regulations (40 C	FR 261). T	his material could be	aste according to Federal ecome a hazardous waste if th a hazardous waste, if			

local regulations for additional requirements.

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

**Disposal methods** 

According to 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

REPORT NO .: LCS200918096ASD Disposal should be in accordance with applicable regional, national and **Contaminated Packaging** local laws and regulations. California Hazardous Waste Codes 141 This product contains one or more substances that are listed with the State of California as a hazardous waste. California Hazardous Waste **Chemical Name** Lithium Cobalt Oxide (CoLiO<sub>2</sub>) Toxic 12190-79-3 Copper Toxic 7440-50-8 Aluminum foil Ignitable powder 7429-90-5 Section 14 – Transport information **UN Number** UN 3480 & UN 3481 -DOT, IMDG, IATA Lithium ion Batteries (Including lithium ion polymer batteries) or ; Lithium ion Batteries contained in equipments (Including lithium ion polymer **UN Proper shipping name** batteries) or: -DOT, IMDG, IATA Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries) Li-ion Battery (Sample Model: 18650 3S1P) is tested and has passed in accordance with UN manual of Tests and Criteria, Part III, subsection 38.3. The transportation of lithium cells and batteries is regulated by the International Air Transport Association (According to Section II/ Section IB of PACKING INST RUCTION 965, or to Section II of PACKING INSTRUCTION 966~967 of IATA D GR 61st Edition for transportation), International Civil Aviation Organization, Inter **Transport information** national Maritime Dangerous Goods Code and the US Department of Transporta tion listed in 49 CFR 173.185. 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" Transport hazard class(es) 9 -DOT. IMDG. IATA **Environmental hazards** Yes(DOT) Marine pollutant Symbol (fish and tree) Special precautions for user Warning: Miscellaneous dangerous substances and articles **EMS Number** F-A,S-N Transport in bulk according

to Annex II of MARPOL73/78 Not applicable and the IBC Code Special marking with the symbol (fish and tree) 0 Limited quantities (LQ) Code: E0 **Excepted quantities (EQ)** Not permitted as Excepted Quantity

DOT

Remarks: IMDG

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### **Section 15- Regulatory information**

	3	ectio	on 15	- Re	egula	itory	Intorn	nation		
(a) International	nventories									
TSCA	Compli	es.								
DSL	All corr	ponent	ts are lis	sted ei	ither on	the DSL	or NDS	L.		
(b) US Federal Ro	gulations									
SARA 313	Section (SARA	). This l	product	conta	ne Superfund Amendments and Reauthorization Act of 1986 ains a chemical or chemicals which are subject to the reporting ad Title 40 of the Code of Federal Regulations, Part 372.					
Chemical Name			AS No				Weight-%		SARA	313 – Threshold Values %
Lithium Cobalt Oxi (CoLiO <sub>2</sub> )	de	1219	90-79-3				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	rd		No							
Chronic Health Haz	zard		No							
Fire Hazard			No							
Sudden release of	pressure haz	zard	No							
Reactive Hazard			No							
					ursuant	to the C	lean Ŵa	•	R 122.	21 and 40 CFR
Chemical Name	CWA - R Quar	eportab ntities	ble	-	WA - Toxic CWA - Prior Pollutants Pollutants			C	WA - Hazardous Substances	
Copper 7440-50-8					Х	x x				
	CLA		hazar Comp	This material, as supplied, contains one or more substances regulated as a nazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) lous Substances Extremely Hazardous RQ						mental Response
Chemical N	ame	Haz	ardous S RC		tances Extremely Hazardous Substances RQs				RQ	
Copper 7440-50			500	00 lb						5000 lb final RQ 2270 kg final RQ
(c) US State Reg	ulations									
California Propos	ition 65				This p	roduct co	ontains th	ne following P	opositi	on 65 chemicals.
С	hemical nam	e			California Proposition 65					
Grap	hite – 7782-	42-5						Carcinogen		
U.S. State Right-te	o-Know Reg	ulation	ns							
Chemical Name	New J	ersey	Massa	chuse	etts	Pennsylvania		Rhode Island		Illinois
Graphite 7782-42-5	х			Х		х				х
Lithium Cobalt Ox (CoLiO <sub>2</sub> ) 12190-79-3	ide x					х		x		Х
Aluminum 7429-90-5	х			Х		х		x		
Copper 7440-50-8	х			х		х		x		х

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						REF	ORT NO.: LCS200918096	BASD	
(d) Inter	national Regulatior	าร							
Mexico									
National	occupational expos	sure lim	nits						
	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= 1 n   7440-50-8 (3 - 7) Mexico: TWA= 0.2						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 - Carcii	nogens						
Canada									
WHMIS I	Hazard Class		Not determined						
		S	ection 16-	Othe	er informati	on			
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 Hazard Star Legend * = Chronic Health Hazard									
The infor the date storage, information	<b>Disclaimer</b> 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\*\*\*\*\*\*