Issuing Date 27-Aug-2015

SAFETY DATA SHEET

Revision Date 27-Aug-2015

Revision Number 3

(U)

The supplier identified below generated this SDS using the UL SDS template. UL did not test, certify, or approve the substance described in this SDS, and all information in this SDS was provided by the supplier or was reproduced from publically available regulatory data sources. UL makes no representations or warranties regarding the completeness or accuracy of the information in this SDS and disclaims all liability in connection with the use of this information or the substance described in this SDS. The layout, appearance and format of this SDS is © 2014 UL LLC. All rights reserved.

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

Product identifier		
Product Name	Battery Model DS752042	
Other means of identification		
Synonyms	None	
Recommended use of the chemical	and restrictions on use	
Recommended Use	LITHIUM ION BATTERIES	
Uses advised against	No information available	
Details of the supplier of the safety	data sheet	
Supplier Name	Tigerpow battery(DongGuan) co., Itd	
Supplier Address	No1,LeiTian Str., XiangShan Rd.,QingXi District DongGuan GuangDong 523600 CN	
Supplier Phone Number	Phone:86-769-82098533	
Supplier Email	sales@tigerpow.com	
Emergency telephone number		
Company Emergency Phone Number	86-13377782960	

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.

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 3



Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word	Danger	
Hazard Statements Harmful if swallowed Toxic in contact with skin Causes severe skin burns and eye d Suspected of causing cancer Causes damage to organs through p		
	ntains a chemical substance. Safety information d not result in exposure to the chemical substanc above hazards exist.	
Appearance No information availa	ble Physical state Solid	Odor No information available

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 Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label) Immediately call a POISON CENTER or doctor/physician 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 Immediately call a POISON CENTER or doctor/physician

Skin

Call a POISON CENTER or doctor/physician if you feel unwell Wash contaminated clothing before reuse IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

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

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell Rinse mouth Do NOT induce vomiting

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 18 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

Very toxic to aquatic life with long lasting effects

Interactions with Other Chemicals

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Percent	Trade Secret
Lithium Cobalt Oxide (CoLiO2)	12190-79-3	15 - 40	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	10 - 30	*
Graphite	7782-42-5	10 - 30	*
Copper	7440-50-8	10 - 30	*
Aluminum	7429-90-5	5 - 10	*

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

4. FIRST AID MEASURES

First aid measures

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. Immediate medical attention is required.
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).	
Most important symptoms and effects, both acute and delayed		
Most Important Symptoms and	Coughing and/ or wheezing. Itching. Burning sensation.	
Effects		
	al attention and special treatment needed	

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.

No.

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.

Hazardous Combustion Products Carbon oxides.

Carbon Oxides.

Explosion Data Sensitivity to Mechanical Impact

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	Attention! Corrosive material. 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. Prevent further leakage or 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.	
Methods and material for containme	ent 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. Avoid contact with skin, eyes or clothing. Handle in accordance with	

IandlingIn case of rupture. Avoid contact with skin, eyes or clothing. Handle in accordance with
good industrial hygiene and safety practice. Use personal protection equipment.

Conditions for 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.

Acids. Bases. Oxidizing agent.

Incompatible Products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lithium Cobalt Oxide	TWA: 0.02 mg/m ³	-	
(CoLiO2)			
12190-79-3			
Phosphate(1-), hexafluoro-,	TWA: 2.5 mg/m ³ F	TWA: 2.5 mg/m ³ F	
lithium		(vacated) TWA: 2.5 mg/m ³	
21324-40-3			
Graphite	TWA: 2 mg/m ³ respirable particulate	TWA: 15 mg/m ³ total dust synthetic	IDLH: 1250 mg/m ³
7782-42-5	matter all forms except graphite fibers	TWA: 5 mg/m ³ respirable fraction	TWA: 2.5 mg/m ³ respirable dust
		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	
Copper 7440-50-8	TWA: 0.2 mg/m³ fume TWA: 1 mg/m³ Cu dust and mist	TWA: 0.1 mg/m³ fume TWA: 1 mg/m³ dust and mist (vacated) TWA: 0.1 mg/m³ Cu dust, fume, mist	IDLH: 100 mg/m³ dust, fume and mist TWA: 1 mg/m³ dust and mist TWA: 0.1 mg/m³ fume
Aluminum 7429-90-5	TWA: 1 mg/m ³ respirable particulate matter	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ Al Aluminum	TWA: 10 mg/m³ total dust TWA: 5 mg/m³ respirable dust

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

Appropriate engineering controls

Engineering Measures	Showers Eyewash stations Ventilation systems
Individual protection measures, su	ch as personal protective equipment
Eye/face protection	Face protection shield.
Skin and body protection	Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.
Respiratory protection	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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. 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. Take off contaminated clothing and wash before reuse. No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Solid No information available No information available	Odor Odor Threshold	No information available No information available
<u>Values</u> No data available No data available No data available No data available No data available	<u>Remarks Method</u> None known None known None known None known None known	
	No information available No information available <u>Values</u> No data available No data available No data available No data available	No information availableOdor Odor ThresholdNo information availableOdor ThresholdValuesRemarks MethodNo data availableNone knownNo data availableNone known



Flammability Limit in Air	
Upper flammability limit	No data available
Lower flammability limit	No data available
Vapor pressure	No data available
Vapor density	No data available
Specific Gravity	No data available
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/wate	r No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Other Information	
Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available

None known None known

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Particle Size Distribution

<u>Chemical stability</u> Stable under recommended storage 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.

Incompatible materials

Acids. Bases. Oxidizing agent.

Hazardous Decomposition Products

Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on 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. Toxic in contact with skin. May be absorbed through the skin in harmful amounts.
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. Harmful if swallowed.
Component Information	

Information on toxicological effects

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

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
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	A3	Group 2B		Х

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.
Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI).
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) 1,577.00 mg/kg **ATEmix (dermal)** 946.00 mg/kg (ATE)

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life. Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	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: = 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 (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)		48h EC50: = 0.03 mg/L

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Other adverse effects

No information available.



13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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.
Contaminated Packaging	Dispose of contents/containers in accordance with local regulations.

California Hazardous Waste Codes 141

Chemical name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO2)	Toxic
12190-79-3	
Copper	Toxic
7440-50-8	
Aluminum	Ignitable powder
7429-90-5	

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> Proper Shipping Name Hazard Class Emergency Response Guide Number	NOT REGULATED NON-REGULATED N/A 147
TDG	Not regulated
MEX	Not regulated
ICAO	Not regulated
IATA Proper Shipping Name Hazard Class	Not regulated NON REGULATED N/A
IMDG/IMO	Not regulated



Hazard Class EmS-No.	N/A F-A, S-I
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Not determined
DSL	Not determined

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	Percent	SARA 313 - Threshold Values %
Lithium Cobalt Oxide (CoLiO2) - 12190-79-3	12190-79-3	15 - 40	0.1
Copper - 7440-50-8	7440-50-8	10 - 30	1.0
Aluminum - 7429-90-5	7429-90-5	5 - 10	1.0
SARA 311/312 Hazard Categories			
Acute Health Hazard	No		
Chronic Health Hazard	No		

No

No

No

Fire Hazard

Sudden release of pressure hazard Reactive Hazard

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
Copper		X	Х	
7440-50-8				
	•		•	

<u>CERCLA</u>

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	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations



Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	Х		Х	Х	Х
Phosphate(1-), hexafluoro-, lithium 21324-40-3	Х				
Graphite 7782-42-5	Х	Х	Х		
Copper 7440-50-8	Х	Х	Х	Х	Х
Aluminum 7429-90-5	X	X	Х	Х	

International Regulations

Mexico

National occupational exposure limits

Chemical name	Carcinogen Status	Exposure Limits
Graphite		Mexico: TWA= 2 mg/m ³
Copper		Mexico: TWA= 1 mg/m ³
		Mexico: TWA= 0.2 mg/m ³
		Mexico: STEL= 2 mg/m ³
Aluminum		Mexico: TWA= 10 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada WHMIS Hazard Class

Non-controlled

16. OTHER INFORMATION				
NFPA	FPA Health Hazards 1 Flammability 0 Instability 0			
HMIS	Health Hazards 0	Flammability 0	Physical Hazard 0	Chemical Hazards - Personal Protection X
Prepared By	Product Stewardship 23 British American Blvd. Latham, NY 12110 1-800-572-6501			
Issuing Date Revision Date Revision Note	27-Aug-2015 27-Aug-2015 No information available			

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

