Safety Data Sheet

Li-ion Cell

Version：V2.0.0.2
Report No.：HGNM21DWVU
Creation Date：2021/05/12
Revision Date：2021/05/25

*Prepared according to EU regulation No. 2020/878

1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product Name	Li-ion Cell
Product Model	14500-800mAh /14500-600mAh/14500-700mAh/14650-1100mAh/14430-650mAh/14430-500mAh/14430-600mAh/14430-700mAh/16340-700mAh/18500-1200mAh/18500-1400mAh/18500-1500mAh18650-2000mAh/18350-900mAh/10440-320mAh/10440-350mAh/16650-1600mAh/16310-700mAh
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

1.3 Details of the supplier of the Safety Data Sheet

Name of the company	Jiangxi Shenchao Energy Technology Co., Ltd
Address of the company	Nanfeng County Industrial Park ,Fuzhou City,Jiangxi Province
Post code	234547240@qq.com
Telephone number	0794-7960801
Fax number	——
E-mail address	——

1.4 Emergency telephone number

Emergency telephone number	0519-86398709
Opening hours	24h

2 Hazards identification

2.1 CLP classification according to Regulation（EC）No. 1272/2008

The product meets the definition of "article". In the Globally Harmonized Chemical Classification and Labeling System (GHS), the "articles" defined by the US Occupational Safety and Health Administration "Hazard Communication Standard" (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. [Rev. 8 (2019) Part 1.3.2.1.1].
According to Regulation (EC) No 1272/2008 and its amendments. Not classified as a dangerous substance.

2.2 GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

P101	If medical advice is needed, have product container or label at hand
P102	Keep out of reach of children

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

P501	Dispose of contents/container according to the separated collection system used in your municipality

Supplementary information

EUH210	Safety data sheet available on request

2.3 Other hazards

◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Lithium cobalt oxide	Not applicable
Graphite	Not applicable
Copper Foils	Not applicable
Aluminum Foils	Not applicable

◆ Results of endocrine disrupting properties assessment

Results of endocrine disrupting properties assessment	Insufficient information, temporarily unable to evaluate

◆ Other

	Not applicable.

3 Composition/information on ingredients

3.1 Substance

	Not applicable

3.2 Mixture

	Mixture of substances

Component	Weight % content	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific Conc. Limits, M-factors

	(or range)		
Lithium cobalt oxide CAS：12190-79-3 EC：235-362-0 Index No.：-	30~35	Sensitization – Skin，Category 1，H317；Carcinogenicity，Category 1，H350	-
Graphite CAS：7782-42-5 EC：231-955-3 Index No.：-	21~24	Not Classified	-
Copper Foils CAS：7440-50-8 EC：231-159-6 Index No.：-	11~15	Not Classified	-
Aluminum Foils CAS：7429-90-5 EC：231-072-3 Index No.：013-002-00-1	8~12	Flammable Solids，Category 1，H228；Substances And Mixtures Which, In Contact With Water, Emit Flammable Gases，Category 2，H261	-
Electrolyte CAS：- EC：- Index No.：-	5~10	Not Classified	-
other CAS：- EC：- Index No.：-	5~10	Not Classified	-
SBR CAS：9003-55-8 EC：618-370-2 Index No.：-	3~6	Not Classified	-
Polyvinylidene Fluoride CAS：24937-79-9 EC：607-458-6 Index No.：-	2~5	Not Classified	-

4 First-aid measures

4.1 Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	No harm in general situation. First aid is not needed.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

4.2 Most important symptoms/effects, acute and delayed

1	Please see section 11.

4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

5.2 Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	Not considered a significant fire risk, however containers may burn.

5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus （MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3	Use personal protective equipment. Avoid breathing mist or dust.

6.2 Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Isolation of contaminated areas and restrictions on access.
4	It is recommended that emergency personnel wear dust masks.
5	Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
6	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

6.4 Reference to other sections

1	See sections 8 and 13.

7 Handling and storage

7.1 Precautions for safe handling

◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Avoid contact with eyes.

◆ Measures to prevent fire

1	Keep away from heat/sparks/open flames/ hot surfaces.

◆ Measures to prevent aerosol and dust generation

1	Avoid formation of dust and aerosols.
2	Provide appropriate exhaust ventilation at places where dust is formed.

◆ Advice on general occupational hygiene

1	Wash hands and face after using of the substances.
2	Replace the contaminated clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

7.3 Specific end use(s)

1	In addition to use mentioned in the first parts, unforeseen other specific end uses.

8 Exposure controls/personal protection

8.1 Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m³	ppm	mg/m³
Graphite	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Copper Foils	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminum Foils	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

◆ Biological limit values

Biological limit values	No relevant regulations

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300.1~GBZ/T 300.160-2017; GBZ/T 300.161~GBZ/T 300.164-2018 Determination of toxic substances in workplace air (Series standard).

◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Lithium cobalt oxide	Inhalation	No data available	No data available	0.0664 mg/m^3	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Graphite	Inhalation	No data available	No data available	1.2 mg/m^3	10 mg/m^3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Copper Foils	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Aluminum Foils	Inhalation	No data available	No data available	3.72 mg/m^3	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
SBR	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Polyvinylidene Fluoride	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Predicted No Effect Concentration (PNEC)	No information available

8.2 Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Set up emergency exit and necessary risk-elimination area.
4	Handle in accordance with good industrial hygiene and safety practice.

Personal protection equipment

General requirement	No special requirements, please see the description below.
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.

Skin and body protection	In general situation, skin and body protection are not needed.

9 Physical and chemical properties and safety characteristics

9.1 Physical and chemical properties

Physical state	Solid
Colour	No information available
Odor	No special odor
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup,°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Not flammable
Upper/lower explosive limits[%(v/v)]	Upper limit：No information available；Lower limit：No information available
Vapor pressure	Not applicable
Vapor density(Air = 1)	Not applicable
Relative density(Water=1)	No information available
Solubility	Insoluble in water
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing
Particle characteristics	No information available

9.2 Other information

Surface tension at 20 ºC	Not applicable
Refraction index	Not applicable

10 Stability and reactivity

Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 Incompatible materials	Metal acetylide, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen

	oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Oxidants, halogen, interhalogen and mercury.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

11.1 Acute toxicity

Acute toxicity	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Lithium cobalt oxide	Category 2B	Not Listed
Graphite	Not Listed	Not Listed
Copper Foils	Not Listed	Not Listed
Aluminum Foils	Not Listed	Not Listed
Electrolyte	Not Listed	Not Listed
other	Not Listed	Not Listed
SBR	Category 3	Not Listed
Polyvinylidene Fluoride	Not Listed	Not Listed

Endocrine disrupting properties

Endocrine disrupting properties	No information available

Others

	Li-ion Cell
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

12 Ecological information

12.1 Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Aluminum Foils	LC_{50}：1.55mg/L (96h)(Fish)	No information available	No information available

Copper Foils	LC_{50}：0.665mg/L (96h)(Fish)	EC_{50}：0.02mg/L (48h)(Crustaceans)	ErC_{50}：7.9mg/L (96h)(Algae)

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

12.2 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low

12.3 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294

12.4 Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Graphite	Low	23.74

12.5 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Lithium cobalt oxide	Not applicable
Graphite	Not applicable
Copper Foils	Not applicable
Aluminum Foils	Not applicable

12.6 Endocrine disrupting properties

Endocrine disrupting properties	No information available

13 Disposal considerations

13.1 Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	

IMDG-CODE

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable
Special provisions	188 230 310 348 376 377
Limited quantities	0
Excepted quantities	E0
Marine pollutant (Yes or no)	No
EmS No.	F-A,S-I

IATA-DGR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable
Excepted quantities	E0
Passenger and Cargo Aircraft Limited Quantity Packing Instructions	Forbidden
Passenger and Cargo Aircraft Limited Quantity Maxium net Quantity per Package	Forbidden
Passenger and Cargo Aircraft Packing Instructions	See 965
Passenger and Cargo Aircraft Maxium net Quantity per Package	-
Cargo Aircraft Packing Instructions	See 965
Cargo Aircraft Maxium net Quantity per Package	-
Special provisions	A88、A99、A154、A164、A183
ERG code	9F

UN-ADR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable
Special provisions	188|230|310|348|376|377|636

Limited quantities	0
Excepted quantities	E0
Packing instructions	P903|P908|P909|LP903|LP904
Special packing provisions	-
Mixed packing provisions	-
Protable tanks and bulk containers instructions	-
Protable tanks and bulk containers special provisions	-
ADR tank code	-
ADR tank special provisions	-
Vehicle for tank carriage	-
Transport category(Tunnel restriction code)	2 (E)
Special provisions for carriage(Packages)	-
Special provisions for carriage (Bulk)	-
Special provisions for carriage (Loading, unloading and handling)	-
Special provisions for carriage (Operation)	-
Hazard identification No.	-
Notes	-

15 Regulatory information

15.1 International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Lithium cobalt oxide	√	√	√	√	√	×	√	√	√
Graphite	√	√	√	√	√	√	√	√	×
Copper Foils	√	√	√	√	√	√	√	√	√
Aluminum Foils	√	√	√	√	×	√	√	√	√
Electrolyte	×	×	×	×	×	×	×	×	×
other	×	×	×	×	×	×	×	×	×
SBR	×	√	√	√	√	√	√	√	√
Polyvinylidene Fluoride	×	√	√	√	√	√	√	√	√

[EINECS] European Inventory of Existing Commercial Chemical Substances
[TSCA] United States Toxic Substances Control Act Inventory
[DSL] Canadian Domestic Substances List
[IECSC] China Inventory of Existing Chemical Substances
[NZIoC] New Zealand Inventory of Chemicals
[PICCS] Philippines Inventory of Chemicals and Chemical Substances
[KECI] Korea Existing Chemicals Inventory
[AIIC] Australia. Inventory of Industrial Chemicals (AIIC)
[ENCS] Japan Inventory of Existing & New Chemical Substances

15.2 European chemical inventory

Component	A	B	C	D	E	F	G
Lithium cobalt oxide	×	×	×	√	√	×	×
Graphite	×	×	×	√	√	√	×
Copper Foils	×	×	×	√	√	×	×
Aluminum Foils	×	×	√	√	√	×	×
Electrolyte	×	×	×	×	×	×	×
other	×	×	×	×	×	×	×
SBR	×	×	×	√	×	×	×
Polyvinylidene Fluoride	×	×	×	√	×	×	×

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation
[B] Substances requiring authorisation under EU REACH regulation
[C] Substances restricted under EU REACH
[D] Pre-registered substances under EU REACH
[E] Registered substances under EU REACH
[F] Substance Evaluation – CoRAP under EU REACH
[G] List of priority substances under EU water policy (Directive 2455/2001/EC)

Note:
"√" Indicates that the substance included in the regulations.
"×" No data or not inlcuded in the regulations.

16 Other information

Information on revision

Creation Date	2021/05/12
Revision Date	2021/05/25
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home。
[2] IARC, website: http://www.iarc.fr/。
[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/substancesearch/index.action。
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple。
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp。
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/。
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg。
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/。

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG	International Maritime Dangerous Goods
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program

EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.