合規化學

正本/ORIGINAL

Design Report of Safety Data Sheet

Report No.:HGNM21EHD4

Issue date:2021.12.27

Product Name:	Rechargeable Li-ion Battery System LX F6.6-H
Applicant:	GoodWe Technologies Co., Ltd.
Supplier:	Anhui GT New Energy Co., Ltd.
Composition of the product:	Phosphoric acid,iron(2+) lithium salt (1:1:1) ; Graphite ; Copper ; Aluminium ; 1-Propene, homopolymer ; Lithium hexafluorophosphate(1-) .
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

常州合规思远产品安全技术服务有限公司 报告专用章

名 称： 常州合规思远产品安全技术服务有限公司（简称：合规化学）
Name: Changzhou HeguiSiyuan Products Safety Technology Service Co., Ltd.（CRchemical）
地 址： 江苏省常州市新北区太湖东路 9 号 4 幢 1205 室
Add: 4-1205, Creative Industries Park, No.9, East Taihu Road, Xinbei District, Changzhou, 213022, Jiangsu P.R.China.
网址|Web: www.hgmsds.com 电话|Tel: +86-519-8515 0306 邮箱|E-mail: msds@hgmsds.com

Terms of the Using of the Report

1. According to the needs of the report, our company requires the client to provide true and complete samples and information.
2. Information from applicant is the key of this report, our company will not respond for the wrong of applicant.
3. If there is any change in the chemical information submitted by the client, this report will automatically become invalid.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by our company.
6. Our company guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
7. This report does not consider the differences between countries and operators.
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Safety Data Sheet

Rechargeable Li-ion Battery System LX F6.6-H

Version：V2.0.0.1
Report No.：HGNM21EHD4
Creation Date：2021/12/27
Revision Date：2021/12/27

*Prepared according to UN GHS (the 8th revised edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery System LX F6.6-H
Product Model	LX F6.6-H
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

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

Details of the supplier

Applicant Name	GoodWe Technologies Co., Ltd.
Applicant Address	No.90 Zijin Rd., New District, Suzhou, 215011, China
Applicant Post Code	215011
Applicant Telephone	0512-69582201
Applicant Fax	——
Applicant E-mail	safety@goodwe.com
Supplier Name	Anhui GT New Energy Co., Ltd.
Supplier Address	No.208 East Tongrui Road，EDZ，Guangde City，Anhui Province，China
Supplier Post Code	——
Supplier Telephone	——
Supplier Fax	——
Supplier E-mail	——
Australia Importer Company Name	GoodWe Australia Pty Ltd
Address	2/6 Enterprise Drive, Rowville, Victoria, 3178, Australia
Contact Person Name	Dean Williamson
Contact Person Number	61 402 817 522
Contact Person E-mail	Dean.williamson@goodwe.com

Emergency phone number

Emergency phone number	0512-69582201

2 Hazard(s) identification

Hazard classification according to GHS

Hazard classification according to GHS	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].

GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Hazard description

◆ Physical and chemical hazards

	When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Phosphoric acid,iron(2+) lithium salt (1:1:1)	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
1-Propene, homopolymer	9003-07-0	618-352-4	Commercial secrets
Lithium hexafluorophosphate(1-)	21324-40-3	244-334-7	Commercial secrets

4 First-aid measures

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 or Poison Control Center 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.

Most important symptoms/effects, acute and delayed

1	Please see section 11.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

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.

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.

Special protective equipment and precautions for fire-fighters

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

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,do not breathe dust/fume.

Environmental precautions

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

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.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Avoid contact with eyes.
3	Keep away from heat/sparks/open flames/ hot surfaces.

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.

8 Exposure controls/personal protection

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	The Netherlands	-	0.1	-	-

	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate(1-)	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

◆ 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).

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

Physical and chemical properties

Physical state	Solid（Lithium-ion battery, battery parameters: 204.8V 32Ah 6550Wh）
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
Relative vapour 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
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
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.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Acute toxicity	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Phosphoric acid,iron(2+) lithium salt (1:1:1)	Not Listed	Not Listed

Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
1-Propene, homopolymer	Category 3	Not Listed
Lithium hexafluorophosphate(1-)	Not Listed	Not Listed

Others

Rechargeable Li-ion Battery System LX F6.6-H	
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

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Copper	LC_{50}：0.665mg/L (96h)(Fish)	EC_{50}：0.02mg/L (48h)(Crustaceans)	ErC_{50}：7.9mg/L (96h)(Algae)
Aluminium	LC_{50}：1.55mg/L (96h)(Fish)	No information available	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
1-Propene, homopolymer	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
1-Propene, homopolymer	Low	Log Kow=1.6783

Mobility in soil

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

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Lithium hexafluorophosphate(1-)	Not applicable

13 Disposal considerations

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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Phosphoric acid,iron(2+) lithium salt (1:1:1)	×	√	√	√	×	×	√	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	√
Aluminium	√	√	√	√	×	√	√	√	√
1-Propene, homopolymer	×	√	√	√	√	√	√	√	√
Lithium hexafluorophosphate(1-)	√	√	×	√	×	√	√	√	×

[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

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	2021/12/27
Revision Date	2021/12/27
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 UN GHS (the 8th revised edition). 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.

合規化學

正本/ORIGINAL

Design Report of Safety Data Sheet

Report No.:HGNM21HOQW

Issue date:2021.12.27

Product Name:	Rechargeable Li-ion Battery System LX F9.8-H
Applicant:	GoodWe Technologies Co., Ltd.
Supplier:	Anhui GT New Energy Co., Ltd.
Composition of the product:	Phosphoric acid,iron(2+) lithium salt (1:1:1) ; Graphite ; Copper ; Aluminium ; 1-Propene, homopolymer ; Lithium hexafluorophosphate(1-) .
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

报告专用章

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4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
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6. Our company guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
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Safety Data Sheet

Rechargeable Li-ion Battery System LX F9.8-H

Version：V2.0.0.1
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*Prepared according to UN GHS (the 8th revised edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery System LX F9.8-H
Product Model	LX F9.8-H
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

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

Details of the supplier

Applicant Name	GoodWe Technologies Co., Ltd.
Applicant Address	No.90 Zijin Rd., New District, Suzhou, 215011, China
Applicant Post Code	215011
Applicant Telephone	0512-69582201
Applicant Fax	——
Applicant E-mail	safety@goodwe.com
Supplier Name	Anhui GT New Energy Co., Ltd.
Supplier Address	No.208 East Tongrui Road，EDZ，Guangde City，Anhui Province，China
Supplier Post Code	——
Supplier Telephone	——
Supplier Fax	——
Supplier E-mail	——
Australia Importer Company Name	GoodWe Australia Pty Ltd
Address	2/6 Enterprise Drive, Rowville, Victoria, 3178, Australia
Contact Person Name	Dean Williamson
Contact Person Number	61 402 817 522
Contact Person E-mail	Dean.williamson@goodwe.com

Emergency phone number

Emergency phone number	0512-69582201

2 Hazard(s) identification

Hazard classification according to GHS

Hazard classification according to GHS	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].

GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Hazard description

◆ Physical and chemical hazards

	When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Phosphoric acid,iron(2+) lithium salt (1:1:1)	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
1-Propene, homopolymer	9003-07-0	618-352-4	Commercial secrets
Lithium hexafluorophosphate(1-)	21324-40-3	244-334-7	Commercial secrets

4 First-aid measures

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 or Poison Control Center 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.

Most important symptoms/effects, acute and delayed

1	Please see section 11.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

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.

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.

Special protective equipment and precautions for fire-fighters

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

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,do not breathe dust/fume.

Environmental precautions

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

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.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Avoid contact with eyes.
3	Keep away from heat/sparks/open flames/ hot surfaces.

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.

8 Exposure controls/personal protection

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	The Netherlands	-	0.1	-	-

	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate(1-)	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

◆ 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).

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

Physical and chemical properties

Physical state	Solid（Lithium-ion battery, battery parameters: 307.2V 32Ah 9830Wh）
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
Relative vapour 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
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
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.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Acute toxicity	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Phosphoric acid,iron(2+) lithium salt (1:1:1)	Not Listed	Not Listed

Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
1-Propene, homopolymer	Category 3	Not Listed
Lithium hexafluorophosphate(1-)	Not Listed	Not Listed

Others

Rechargeable Li-ion Battery System LX F9.8-H	
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

Acute aquatic toxicity

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

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
1-Propene, homopolymer	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
1-Propene, homopolymer	Low	Log Kow=1.6783

Mobility in soil

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

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Lithium hexafluorophosphate(1-)	Not applicable

13 Disposal considerations

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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Phosphoric acid,iron(2+) lithium salt (1:1:1)	×	√	√	√	×	×	√	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	√
Aluminium	√	√	√	√	×	√	√	√	√
1-Propene, homopolymer	×	√	√	√	√	√	√	√	√
Lithium hexafluorophosphate(1-)	√	√	×	√	×	√	√	√	×

[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

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	2021/12/27
Revision Date	2021/12/27
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 UN GHS (the 8th revised edition). 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.

正本/ORIGINAL

Design Report of Safety Data Sheet

Report No.:HGNM21VPTN

Issue date:2021.12.27

Product Name:	Rechargeable Li-ion Battery System LX F13.1-H
Applicant:	GoodWe Technologies Co., Ltd.
Supplier:	Anhui GT New Energy Co., Ltd.
Composition of the product:	Phosphoric acid,iron(2+) lithium salt (1:1:1) ; Graphite ; Copper ; Aluminium ; 1-Propene, homopolymer ; Lithium hexafluorophosphate(1-) .
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

报告专用章

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Terms of the Using of the Report

1. According to the needs of the report, our company requires the client to provide true and complete samples and information.
2. Information from applicant is the key of this report, our company will not respond for the wrong of applicant.
3. If there is any change in the chemical information submitted by the client, this report will automatically become invalid.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by our company.
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名 称： 常州合规思远产品安全技术服务有限公司（简称：合规化学）
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Safety Data Sheet

Rechargeable Li-ion Battery System LX F13.1-H

Version：V2.0.0.1
Report No.：HGNM21VPTN
Creation Date：2021/12/27
Revision Date：2021/12/27

*Prepared according to UN GHS (the 8th revised edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery System LX F13.1-H
Product Model	LX F13.1-H
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

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

Details of the supplier

Applicant Name	GoodWe Technologies Co., Ltd.
Applicant Address	No.90 Zijin Rd., New District, Suzhou, 215011, China
Applicant Post Code	215011
Applicant Telephone	0512-69582201
Applicant Fax	——
Applicant E-mail	safety@goodwe.com
Supplier Name	Anhui GT New Energy Co., Ltd.
Supplier Address	No.208 East Tongrui Road，EDZ，Guangde City，Anhui Province，China
Supplier Post Code	——
Supplier Telephone	——
Supplier Fax	——
Supplier E-mail	——
Australia Importer Company Name	GoodWe Australia Pty Ltd
Address	2/6 Enterprise Drive, Rowville, Victoria, 3178, Australia
Contact Person Name	Dean Williamson
Contact Person Number	61 402 817 522
Contact Person E-mail	Dean.williamson@goodwe.com

Emergency phone number

Emergency phone number	0512-69582201

2 Hazard(s) identification

Hazard classification according to GHS

Hazard classification according to GHS	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].

GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Hazard description

◆ Physical and chemical hazards

	When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Phosphoric acid,iron(2+) lithium salt (1:1:1)	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
1-Propene, homopolymer	9003-07-0	618-352-4	Commercial secrets
Lithium hexafluorophosphate(1-)	21324-40-3	244-334-7	Commercial secrets

4 First-aid measures

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 or Poison Control Center 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.

Most important symptoms/effects, acute and delayed

1	Please see section 11.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

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.

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.

Special protective equipment and precautions for fire-fighters

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

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,do not breathe dust/fume.

Environmental precautions

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

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.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Avoid contact with eyes.
3	Keep away from heat/sparks/open flames/ hot surfaces.

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.

8 Exposure controls/personal protection

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	The Netherlands	-	0.1	-	-

	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate(1-)	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

◆ 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).

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

Physical and chemical properties

Physical state	Solid （Lithium ion battery, battery parameters; 409.6V 32Ah 13100Wh）
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
Relative vapour 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
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
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.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Acute toxicity	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Phosphoric acid,iron(2+) lithium salt (1:1:1)	Not Listed	Not Listed

Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
1-Propene, homopolymer	Category 3	Not Listed
Lithium hexafluorophosphate(1-)	Not Listed	Not Listed

Others

Rechargeable Li-ion Battery System LX F13.1-H	
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

Acute aquatic toxicity

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

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
1-Propene, homopolymer	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
1-Propene, homopolymer	Low	Log Kow=1.6783

Mobility in soil

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

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Lithium hexafluorophosphate(1-)	Not applicable

13 Disposal considerations

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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Phosphoric acid,iron(2+) lithium salt (1:1:1)	×	√	√	√	×	×	√	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	√
Aluminium	√	√	√	√	×	√	√	√	√
1-Propene, homopolymer	×	√	√	√	√	√	√	√	√
Lithium hexafluorophosphate(1-)	√	√	×	√	×	√	√	√	×

[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

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	2021/12/27
Revision Date	2021/12/27
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 UN GHS (the 8th revised edition). 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.

正本/ORIGINAL

Design Report of Safety Data Sheet

Report No.:HGNM21JU34

Issue date:2021.12.27

Product Name:	Rechargeable Li-ion Battery System LX F16.4-H
Applicant:	GoodWe Technologies Co., Ltd.
Supplier:	Anhui GT New Energy Co., Ltd.
Composition of the product:	Phosphoric acid,iron(2+) lithium salt (1:1:1) ; Graphite ; Copper ; Aluminium ; 1-Propene, homopolymer ; Lithium hexafluorophosphate(1-) .
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

报告专用章

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3. If there is any change in the chemical information submitted by the client, this report will automatically become invalid.
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Safety Data Sheet

Rechargeable Li-ion Battery System LX F16.4-H

Version：V2.0.0.1
Report No.：HGNM21JU34
Creation Date：2021/12/27
Revision Date：2021/12/27

*Prepared according to UN GHS (the 8th revised edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery System LX F16.4-H
Product Model	LX F16.4-H
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

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

Details of the supplier

Applicant Name	GoodWe Technologies Co., Ltd.
Applicant Address	No.90 Zijin Rd., New District, Suzhou, 215011, China
Applicant Post Code	215011
Applicant Telephone	0512-69582201
Applicant Fax	——
Applicant E-mail	safety@goodwe.com
Supplier Name	Anhui GT New Energy Co., Ltd.
Supplier Address	No.208 East Tongrui Road，EDZ，Guangde City，Anhui Province，China
Supplier Post Code	——
Supplier Telephone	——
Supplier Fax	——
Supplier E-mail	——
Australia Importer Company Name	GoodWe Australia Pty Ltd
Address	2/6 Enterprise Drive, Rowville, Victoria, 3178, Australia
Contact Person Name	Dean Williamson
Contact Person Number	61 402 817 522
Contact Person E-mail	Dean.williamson@goodwe.com

Emergency phone number

Emergency phone number	0512-69582201

2 Hazard(s) identification

Hazard classification according to GHS

Hazard classification according to GHS	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].

GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Hazard description

◆ Physical and chemical hazards

	When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Phosphoric acid,iron(2+) lithium salt (1:1:1)	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
1-Propene, homopolymer	9003-07-0	618-352-4	Commercial secrets
Lithium hexafluorophosphate(1-)	21324-40-3	244-334-7	Commercial secrets

4 First-aid measures

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 or Poison Control Center 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.

Most important symptoms/effects, acute and delayed

1	Please see section 11.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

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.

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.

Special protective equipment and precautions for fire-fighters

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

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,do not breathe dust/fume.

Environmental precautions

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

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.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Avoid contact with eyes.
3	Keep away from heat/sparks/open flames/ hot surfaces.

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.

8 Exposure controls/personal protection

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	The Netherlands	-	0.1	-	-

	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate(1-)	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

◆ 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).

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

Physical and chemical properties

Physical state	Solid (Lithium-ion battery, battery parameters: 512V 32Ah 16380Wh)
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
Relative vapour 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
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
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.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Acute toxicity	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Phosphoric acid,iron(2+) lithium salt (1:1:1)	Not Listed	Not Listed

Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
1-Propene, homopolymer	Category 3	Not Listed
Lithium hexafluorophosphate(1-)	Not Listed	Not Listed

Others

Rechargeable Li-ion Battery System LX F16.4-H	
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

Acute aquatic toxicity

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

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
1-Propene, homopolymer	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
1-Propene, homopolymer	Low	Log Kow=1.6783

Mobility in soil

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

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Lithium hexafluorophosphate(1-)	Not applicable

13 Disposal considerations

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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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	The packaging must meet the performance level of type II packaging
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

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Phosphoric acid,iron(2+) lithium salt (1:1:1)	×	√	√	√	×	×	√	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	√
Aluminium	√	√	√	√	×	√	√	√	√
1-Propene, homopolymer	×	√	√	√	√	√	√	√	√
Lithium hexafluorophosphate(1-)	√	√	×	√	×	√	√	√	×

[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

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	2021/12/27
Revision Date	2021/12/27
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 UN GHS (the 8th revised edition). 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.