

Design Report of Safety Data Sheet

Report No. :HGNM21Z2PG

Issue date:2022. 01. 05

Product Name:	Battery Pack KY-51V105AH-S
Applicant:	Australian New Energy Technology Pty Ltd
Supplier:	Jiangsu Koyoe Energy Technology Co., Ltd.
Composition of the product:	Phosphoric acid,iron(2+) lithium salt (1:1:1) ; Graphite ; Lithium hexafluorophosphate(1-) ; 1-Propene, homopolymer .
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:



常州合規思遠產品安全技術服務有限公司

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

報告專用章

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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

Battery Pack KY-51V105AH-S

Version: V2.0.0.1

Report No.: HGNM21Z2PG

Creation Date: 2022/01/05

Revision Date: 2022/01/05

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

1 Identification

Product identifier

Product Name	Battery Pack KY-51V105AH-S
Product Model	KY-51V105AH-S
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	Australian New Energy Technology Pty Ltd
Applicant Address	17 Killarra Avenue, Camberwell VIC 3124
Applicant Post Code	—
Applicant Telephone	+61407662199
Applicant Fax	—
Applicant E-mail	anetpl.koyoe@gmail.com
Supplier Name	Jiangsu Koyoe Energy Technology Co., Ltd.
Supplier Address	No.40, Wangwu Road, Wuzhong District, Suzhou, P.R.China
Supplier Post Code	—
Supplier Telephone	+86-512-65132664-8883
Supplier Fax	—
Supplier E-mail	—

Emergency phone number

Emergency phone number	+61407662199/+86-512-65132664-8883
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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].
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GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable
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Precautionary statements

◆ Prevention

Prevention	Not applicable
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◆ Response

Response	Not applicable
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◆ Storage

Storage	Not applicable
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◆ Disposal

Disposal	Not applicable
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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.
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◆ Health hazards

Inhaled	According to the material form, it is not the normal way of contacting.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	No harm in general situation.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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3 Composition/information on ingredients**Substance/mixture**

	Mixture
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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
Lithium hexafluorophosphate(1-)	21324-40-3	244-334-7	Commercial secrets
1-Propene, homopolymer	9003-07-0	618-352-4	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 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.
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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	May expansion or decompose explosively when heated or involved in fire.

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.
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.
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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/m ³	ppm	mg/m ³
Graphite	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-

◆ 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.
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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 pack, individually packaged, battery parameters: 51.2V 105Ah 5.3kWh)
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.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylides, halogens, interhalogens, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid.
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
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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
Lithium hexafluorophosphate(1-)	Not Listed	Not Listed
1-Propene, homopolymer	Category 3	Not Listed

Others

Battery Pack KY-51V105AH-S	
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**

Acute aquatic toxicity	No information available
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Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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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
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	
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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 packaging type II
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 packaging type II
Excepted quantities	E0
Passenger and Cargo Aircraft Limited Quantity Packing Instructions	Forbidden
Passenger and Cargo Aircraft Limited Quantity Maximum net Quantity per Package	Forbidden
Passenger and Cargo Aircraft Packing Instructions	See 965
Passenger and Cargo Aircraft Maximum net Quantity per Package	-
Cargo Aircraft Packing Instructions	See 965
Cargo Aircraft Maximum 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 packaging type II
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	-
Portable tanks and bulk containers instructions	-
Portable 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	√	√	√	√	√	√	√	√	×
Lithium hexafluorophosphate(1-)	√	√	×	√	×	√	√	√	×
1-Propene, homopolymer	×	√	√	√	√	√	√	√	√

[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 included in the regulations.

16 Other information

| Information on revision

Creation Date	2022/01/05
Revision Date	2022/01/05

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.

安全技术说明书（SDS）编制报告

报告编号：HG NM21J4QS					
签发日期：2022.01.05					
样品名称：	电池包 KY-51V105AH-S				
委托单位：	Australian New Energy Technology Pty Ltd				
供应商：	江苏科曜能源科技有限公司				
样品组分：	磷酸铁锂；石墨；六氟磷酸锂；聚丙烯隔膜。				
编制依据：	联合国《全球化学品统一分类和标签制度》（GHS）第八修订版				
化学品安全技术说明书(SDS) 请参见本报告附件。					
编制：	李五	复核：	江帆	签发：	李五
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Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.					
报告专用章					

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安全数据单 (SDS)

电池包 KY-51V105AH-S

版本号: V2.0.0.1

报告编号: HGNM21J4QS

编制日期: 2022/01/05

修订日期: 2022/01/05

*依据联合国 GHS 制度第八修订版编制

1 标识

产品标识

产品中文名称	电池包 KY-51V105AH-S
产品英文名称	Battery Pack KY-51V105AH-S
产品型号	KY-51V105AH-S
CAS No.	不适用
EC No.	不适用
分子式	不适用

产品的推荐用途和限制用途

产品的推荐用途	请咨询生产商。
产品的限制用途	请咨询生产商。

供应商的详细情况

委托单位名称	Australian New Energy Technology Pty Ltd
委托单位地址	17 Killarra Avenue, Camberwell VIC 3124
委托单位邮编	—
委托单位联系电话	+61407662199
委托单位传真	—
委托单位电子邮箱	anetpl.koyoe@gmail.com
供应商名称	江苏科曜能源科技有限公司
供应商地址	中国江苏苏州吴中区旺吴路 40 号
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供应商联系电话	+86-512-65132664-8883
供应商传真	—
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紧急电话号码

紧急电话号码	+61407662199/+86-512-65132664-8883
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2 危害标识

GHS 危险性类别

GHS 危险性类别	该产品符合“物品”的定义。在全球化学品统一分类和标签制度 (GHS) 中, 美国职业安全健康管理署“危险公示标准”(29 CFR 1910.1200) 或类似定义界定的“物品”, 不属于这一制度的范围。[Rev. 8 (2019) Part 1.3.2.1.1]。
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GHS 标签要素

象形图	不适用
信号词	不适用

危险性说明

危险性说明	不适用
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防范说明

◆ 预防措施

预防措施	不适用
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◆ 事故响应

事故响应	不适用
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◆ 安全储存

安全储存	不适用
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◆ 废弃处置

废弃处置	不适用
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危害描述

◆ 物理和化学危害

	当外壳、安全电路被破坏或明显受损时, 不排除会放出大量电荷, 如处理不当, 会造成人员受伤甚至伤亡。机械损伤可导致危险。电池产品暴露在高温条件下, 可能会产生热失控情况, 引发火灾。
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◆ 健康危害

吸入	根据物质形态, 不认为是正常的接触途径。
食入	意外食入本品可能对个体健康有害。
皮肤接触	在常规情况下无危害。
眼睛	眼睛直接接触本品可导致暂时不适。

◆ 环境危害

	请参阅 SDS 第十二部分。
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3 成分/组成信息

物质/混合物

	混合物
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组分	CAS No.	EC No.	含量范围 (质量分数,%)
磷酸铁锂	15365-14-7	604-917-2	商业秘密
石墨	7782-42-5	231-955-3	商业秘密
六氟磷酸锂	21324-40-3	244-334-7	商业秘密
聚丙烯隔膜	9003-07-0	618-352-4	商业秘密

4 急救措施

急救措施描述

一般性建议	急救措施通常是需要的, 请将本 SDS 出示给到达现场的医生。
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眼睛接触	用大量水彻底冲洗至少 15 分钟。如有不适, 就医。
皮肤接触	常规情况下, 无危害。不需要紧急救治。
食入	切勿给失去知觉者从嘴里喂食任何东西。立即呼叫医生。
吸入	立即将患者移到新鲜空气处。如果呼吸困难, 给予吸氧。立即就医。
急救人员的防护	确保医护人员了解产品的危害特性, 并采取自身防护措施, 以保护自己和防止污染传播。

最重要的急性和延迟症状/效应

1	请参见第 11 部分。
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紧急医疗处理和特殊处理的说明

1	根据出现的症状进行针对性处理。
2	注意症状可能会出现延迟。

5 消防措施

灭火介质

适当的灭火介质	使用适用于周围环境的灭火介质。
不适当的灭火介质	对使用灭火剂的类型没有限制。

源于此物质或混合物的特别危害

1	火灾时可能产生有害的可燃气体或蒸气。
2	受热或接触火焰可能会产生膨胀或爆炸性分解。

消防人员的特殊保护设备和防备措施

1	灭火时, 应佩戴呼吸面具 (符合 MSHA/NIOSH 要求的或相当的) 并穿上全身防护服。
2	在安全距离处、有充足防护的情况下灭火。
3	防止消防水污染地表和地下水系统。

6 意外释放措施

人身防护、保护设备和应急程序

1	保证充分的通风。清除所有点火源。
2	迅速将人员撤离到安全区域, 远离泄漏区域并处于上风方向。
3	使用个人防护装备, 不要吸入粉尘/烟。

环境防备措施

1	在确保安全的情况下, 采取措施防止进一步的泄漏或溢出。
2	避免排放到周围环境中。

泄漏化学品的收容、清除方法及所使用的处置材料

1	尽可能切断泄漏源。
2	泄漏场所保持通风。
3	隔离泄漏污染区, 限制出入。
4	建议应急处理人员戴防尘口罩。
5	用洁净的铲子收集泄漏物, 置于干净、干燥、盖子较松的容器中, 将容器移离泄漏区。
6	附着物或收集物应存放在合适的密闭容器中, 并根据当地相关法律法规废弃处置。

7 搬运和存储

安全搬运的防范措施

1	在通风良好处进行操作。
2	避免接触眼睛。
3	远离热源、火花、明火和热表面。

安全储存的条件, 包括任何不相容性

1	保持容器密闭。
2	储存在干燥、阴凉和通风处。
3	远离热源、火花、明火和热表面。
4	存储于远离不相容材料和食品容器的地方。

8 接触控制/人身保护

控制参数

组分	国家/地区	职业接触限值 (8h)		职业接触限值 (短时间)	
		ppm	mg/m ³	ppm	mg/m ³
石墨	美国-OSHA	-	15	-	-
	韩国	-	2	-	-
	爱尔兰	-	10	-	-
	德国(DFG)	-	4	-	-
	丹麦	-	2.5	-	5
	澳大利亚	-	3 (4)	-	-

◆ 生物限值

组分	标准来源	生物监测指标	生物限值	采样时间	备注
六氟磷酸锂	欧盟职业接触限制委员会	氟/尿	8mg/L	工作班末	

◆ 监测方法

1	EN 14042 工作场所空气 用于评估暴露于化学或生物试剂的程序指南。
2	GBZ/T 300.1~GBZ/T 300.160-2017; GBZ/T 300.161~GBZ/T 300.164-2018 工作场所空气有毒物质测定 (系列标准)。

工程控制

1	保持充分的通风, 特别在封闭区内。
2	确保在工作场所附近有洗眼和淋浴设施。
3	设置应急撤离通道和必要的泄险区。
4	根据良好的工业卫生和安全规范进行操作。

个人防护装备

总要求	没有特殊要求, 请参阅下面的描述。
眼睛防护	通常情况下不需要眼睛防护, 在生产过程中如果接触到蒸汽/粉尘, 佩戴化学护目镜。
手部防护	通常情况下不需要手部防护。

呼吸系统防护	通常情况下不需要呼吸系统防护, 如果蒸气/粉尘浓度超过职业接触限值或发生刺激等状况时, 戴防尘口罩或防毒面具。
皮肤和身体防护	通常情况下不需要皮肤和身体防护。

9 物理和化学特性

理化特性

物理状态	固体 (锂离子电池包, 单独包装, 电池参数: 51.2V 105Ah 5.3kWh)
颜色	无资料
气味	无特殊气味
气味临界值	无资料
pH 值	无资料
熔点/凝固点(°C)	无资料
初沸点和沸程(°C)	无资料
闪点(闭杯, °C)	不适用
蒸发速率	不适用
易燃性	不易燃
爆炸上限/下限[%(v/v)]	上限: 无资料; 下限: 无资料
蒸气压	不适用
(相对)蒸气密度(空气=1)	不适用
相对密度(水=1)	无资料
溶解性	不溶于水
辛醇/水分配系数	无资料
自燃温度(°C)	无资料
分解温度(°C)	无资料
运动黏度	不适用
颗粒特征	无资料

10 稳定性和反应性

稳定性和反应性

反应性	与不相容物质接触可发生分解或其它化学反应。
化学稳定性	在正确的使用和存储条件下是稳定的。
危害性反应的可能性	与金属乙炔化合物的混合物在加热时, 发生燃烧或白炽化。
应避免的条件	不相容物质, 热、火焰和火花。
不相容材料	金属乙炔化合物、卤素及卤间化合物、卤素的氧化物、硝酸、氧化氮、硝酸盐、亚硝酸盐、卤素含氧酸盐、铬酸盐、高锰酸盐、无机过氧化物、金属氧化物和过氧甲酸。
具有危害性的分解产物	在正常的储存和使用条件下, 不会产生危险的分解产物。

11 毒理学信息

急性毒性

急性毒性	无资料
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致癌性

组分	IARC 致癌物分类清单	NTP 致癌物报告
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磷酸铁锂	未列入	未列入
石墨	未列入	未列入
六氟磷酸锂	未列入	未列入
聚丙烯隔膜	类别 3	未列入

其他信息

电池包 KY-51V105AH-S	
皮肤腐蚀/刺激	根据现有资料, 不符合分类标准
严重眼损伤/眼刺激	根据现有资料, 不符合分类标准
皮肤致敏	根据现有资料, 不符合分类标准
呼吸致敏	根据现有资料, 不符合分类标准
生殖毒性	根据现有资料, 不符合分类标准
特定目标器官毒性-单次接触	根据现有资料, 不符合分类标准
特定目标器官毒性-反复接触	根据现有资料, 不符合分类标准
吸入危害	根据现有资料, 不符合分类标准
生殖细胞致突变性	根据现有资料, 不符合分类标准
生殖毒性附加危害	根据现有资料, 不符合分类标准

12 生态学信息

急性水生毒性

急性水生毒性	无资料
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慢性水生毒性

慢性水生毒性	无资料
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持久性和降解性

组分	持久性 (水/土壤)	持久性 (空气)
石墨	低	低
聚丙烯隔膜	低	低

生物富集或生物积累性

组分	生物富集性	备注
石墨	低	Log Kow=0.5294
聚丙烯隔膜	低	Log Kow=1.6783

土壤中的迁移性

组分	土壤迁移性	有机物土壤/水分配系数(Koc)
石墨	低	23.74
聚丙烯隔膜	低	23.74

PBT 和 vPvB 的结果评价

组分	PBT/vPvB 评价结果 [依据(EC) No 1907/2006]
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石墨	不适用
六氟磷酸锂	不适用


13 废弃处置

废弃处理

废弃化学品	处置之前应参阅国家和地方有关法规。建议用焚烧法处置。
污染包装物	包装物清空后仍可能存在残留物危害, 应远离热和火源, 如有可能返还给供应商循环使用。
废弃注意事项	请参阅废弃化学品和污染包装物。

14 运输信息

标签和标记

运输标签	
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海运危规 (IMDG-CODE)

联合国危险货物编号 (UN No.)	3480
联合国正确运输名称	锂离子电池组 (包括聚合物锂离子电池)
运输主要危险类别	9
运输次要危险类别	无
包装类别	包装必须符合 II 类包装性能水平
运输特殊规定	188 230 310 348 376 377
有限数量	0
例外数量	E0
海洋污染物 (是/否)	否
EmS No.	F-A,S-I

空运 (IATA-DGR)

联合国危险货物编号 (UN No.)	3480
联合国正确运输名称	锂离子电池组 (包括聚合物锂离子电池)
运输主要危险类别	9
运输次要危险类别	无
包装类别	包装必须符合 II 类包装性能水平
例外数量	E0
客运和货运有限数量包装指导	禁止
客运和货运有限数量运输单件最大净重	禁止
客运和货运包装导则	参考 965
客运和货运单件最大净重	-
货运包装指南	参考 965

货运单件最大净重	-
运输特殊规定	A88、A99、A154、A164、A183
ERG 代码	9F

公路运输 (UN-ADR)

联合国危险货物编号 (UN No.)	3480
联合国正确运输名称	锂离子电池组 (包括聚合物锂离子电池)
运输主要危险类别	9
运输次要危险类别	无
包装类别	包装必须符合 II 类包装性能水平
特殊规定	188 230 310 348 376 377 636
有限数量	0
例外数量	E0
包装规范	P903 P908 P909 LP903 LP904
包装特殊规定	-
混合包装规定	-
便携式罐体和散装容器规范	-
便携式罐体和散装容器特殊规定	-
ADR 罐体代码	-
ADR 罐体特殊规定	-
罐体运输的车辆	-
运输分类 (隧道行车限制代码)	2 (E)
运输的特殊规定 (包装)	-
运输的特殊规定 (中型散装货箱)	-
运输的特殊规定 (装卸和操作)	-
运输的特殊规定 (作业)	-
危害识别编码	-
备注	-

15 管理信息

国际化学品名录

组分	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
磷酸铁锂	×	√	√	√	×	×	√	×	×
石墨	√	√	√	√	√	√	√	√	×
六氟磷酸锂	√	√	×	√	×	√	√	√	×
聚丙烯隔膜	×	√	√	√	√	√	√	√	√

- 【EINECS】 欧洲现有化学物质名录
- 【TSCA】 美国 TSCA 化学物质名录
- 【DSL】 加拿大国内化学物质名录
- 【IECSC】 中国现有化学物质名录

【NZIoC】	新西兰现有暂用的化学物质名录
【PICCS】	菲律宾化学品和化学物质名录
【KECI】	韩国现有化学物质名录
【AIIC】	澳大利亚工业化学品名录(AIIC)
【ENCS】	日本现有和新化学物质名录

注:

- “√” 表示该物质列入法规
- “x” 表示暂无资料或未列入法规

16 其他信息

修订信息

编制日期	2022/01/05
修订日期	2022/01/05
修订原因	-

参考文献

- 【1】 国际化学品安全规划署: 国际化学品安全卡 (ICSC), 网址: <http://www.ilo.org/dyn/icsc/showcard.home>。
- 【2】 国际癌症研究机构, 网址: <http://www.iarc.fr/>。
- 【3】 OECD 全球化学品信息平台, 网址: <https://www.echemportal.org/echemportal/substancesearch/index.action>。
- 【4】 美国 CAMEO 化学物质数据库, 网址: <http://cameochemicals.noaa.gov/search/simple>。
- 【5】 美国医学图书馆: 化学品标识数据库, 网址: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>。
- 【6】 美国环境保护署: 综合危险性信息系统, 网址: <http://cfpub.epa.gov/iris/>。
- 【7】 美国交通部: 应急响应指南, 网址: <http://www.phmsa.dot.gov/hazmat/library/erg>。
- 【8】 德国 GESTIS-有害物质数据库, 网址: <http://gestis-en.itrust.de/>。

缩略语

CAS	化学文摘号	UN	联合国
PC-STEL	短时间接触容许浓度	OECD	世界经济合作与发展组织
PC-TWA	时间加权平均容许浓度	IMDG	国际海事组织
MAC	最高容许浓度	IARC	国际癌症研究机构
DNEL	衍生的无影响水平	ICAO	国际民航组织
PNEC	预测的无效应浓度	IATA	国际航空运输协会
NOEC	无显见效应浓度	ACGIH	美国工业卫生会议
LC ₅₀	50%致死浓度	NFPA	美国消防协会
LD ₅₀	50%致死剂量	NTP	国家毒理学计划
EC ₅₀	引起 50%反应的有效物质浓度	PBT	持久性, 生物累积性, 毒性物质
EC _x	产生 x%反应的浓度	vPvB	高持久性, 高生物累积性物质
P _{ow}	辛醇/水分配系数	CMR	致癌、致畸和有生殖毒性的化学物质
BCF	生物富集系数	RPE	呼吸防护设备
ED	内分泌干扰物		

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