



Report No.: MND250910QD_EU(En)

Nomination No.: SHP25-020224

Safety Data Sheet (SDS)

Product Name: V5°/V5°α/DLFP-V5/V5BATTERY

Warranty of Design: EU regulation No. 2020/878

Application Company Name: Shanghai PYTES Energy Co., Ltd.

Application Company Address: No.3492 Jinqian Road, Fengxian District, Shanghai, China

Contact Information: 021-57545800

24 Hour Emergency Call: **021-57475852**

Inspection Date: 2025/06/26

SGS-CSTC Standards Technical Services(Qingdao) Co.,Ltd

Authorised Signatory
2025-07-09



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Safety Data Sheet

V5°/V5°α/DLFP-V5/V5BATTERY

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*Prepared in accordance with EU REACH Regulation (EU regulation No. 2020/878)

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

1.1 Product identifier

Product Name	V5°/V5°α/DLFP-V5/V5BATTERY
Product specifications	Lithium iron phosphate battery
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

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

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

1.3 Details of the supplier of the Safety Data Sheet

Applicant Name	Shanghai PYTES Energy Co., Ltd.
Applicant Address	No.3492 Jinqian Road, Fengxian District, Shanghai, China
Applicant Post Code	——
Applicant Telephone	021-57545800
Applicant Fax	——
Applicant E-mail	pytesess@pytesgroup.com
Supplier Name	Shanghai PYTES Energy Co., Ltd.
Supplier Address	No.3492 Jinqian Road, Fengxian District, Shanghai, China
Supplier Post Code	——
Supplier Telephone	021-57545800
Supplier Fax	——
Supplier E-mail	pytesess@pytesgroup.com
Contact person/company	Jane/ Pytes B.V
Address	Molendijk-Zuid 23B,5482 WZ,Schijndel,Netherlands
Telephone	+31 0625560152
E-mail	jane@pytesgrouo.com

1.4 Emergency telephone number

Emergency telephone number	021-57475852
Opening hours	24h

2 Hazards identification

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

The product meets the definition of "article". In the Globally Harmonized Chemical Classification and Labeling System (GHS), the "articles" defined by the US Occupational Safety and Health Administration "Hazard Communication Standard" (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. [Rev.10 (2023) Part 1.3.2.1.1]. According to Regulation (EC) No 1272/2008 and its amendments. Not classified as a dangerous substance.

2.2 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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2.3 Other hazards

◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Lithium Iron Phosphate	Insufficient information, temporarily unable to evaluate
Graphite	Not applicable
Aluminum Alloy	Not applicable
Copper Foil	Not applicable
Dimethyl carbonate(DMC)	Not PBT/vPvB
Ethylene carbonate(EC)	Not PBT/vPvB
Ethyl methyl carbonate(EMC)	Not PBT/vPvB
Lithium hexafluorophosphate	Not applicable
Separator	Insufficient information, temporarily unable to evaluate
Styrene-butadiene rubber (SBR)	Insufficient information, temporarily unable to evaluate
Poly (vinylidene fluoride) (PVDF)	Insufficient information, temporarily unable to evaluate
Carbon black	Not PBT/vPvB

◆ Results of endocrine disrupting properties assessment

Component	Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]
Lithium Iron Phosphate	Insufficient information, temporarily unable to evaluate
Graphite	Insufficient information, temporarily unable to evaluate
Aluminum Alloy	Insufficient information, temporarily unable to evaluate
Copper Foil	Insufficient information, temporarily unable to evaluate
Dimethyl carbonate(DMC)	Insufficient information, temporarily unable to evaluate
Ethylene carbonate(EC)	Insufficient information, temporarily unable to evaluate
Ethyl methyl carbonate(EMC)	Insufficient information, temporarily unable to evaluate
Lithium hexafluorophosphate	Insufficient information, temporarily unable to evaluate
Separator	Insufficient information, temporarily unable to evaluate
Styrene-butadiene rubber (SBR)	Insufficient information, temporarily unable to evaluate
Poly (vinylidene fluoride) (PVDF)	Insufficient information, temporarily unable to evaluate
Carbon black	Insufficient information, temporarily unable to evaluate

◆ Other

	Not applicable.
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3 Composition/information on ingredients

3.1 Substance/mixture

	Mixture
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Component	Weight % content(or range)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific Conc. Limits, M-factors
Lithium Iron Phosphate CAS: 15365-14-7 EC: 604-917-2 Index No.: -	38.3	Not Classified	-
Graphite CAS: 7782-42-5 EC: 231-955-3 Index No.: -	19.4	Not Classified	-
Aluminum Alloy CAS: 7429-90-5 EC: 231-072-3 Index No.: 013-002-00-1	13.3	Flammable Solids, Category 1, H228; Substances and mixtures which, in contact with water, emit flammable gases, Category 2, H261	-
Copper Foil CAS: 7440-50-8 EC: 231-159-6 Index No.: 029-024-00-X	6.7	Hazardous to the aquatic environment - short-term (acute) hazard, Category 1, H400; Hazardous To The Aquatic Environment - Long-Term (Chronic) Hazard, Category 1, H410	-
Dimethyl carbonate(DMC) CAS: 616-38-6 EC: 210-478-4	5.6	Flammable Liquids, Category 2, H225	-

Index No.: 607-013-00-6			
Ethylene carbonate(EC) CAS: 96-49-1 EC: 202-510-0 Index No.: -	5.6	Acute Toxicity - Oral, Category 4, H302; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - repeated exposure, Category 2, H373	-
Ethyl methyl carbonate(EMC) CAS: 623-53-0 EC: 613-014-2 Index No.: -	4.6	Flammable Liquids, Category 2, H225	-
Lithium hexafluorophosphate CAS: 21324-40-3 EC: 244-334-7 Index No.: -	2.3	Acute Toxicity - Oral, Category 3, H301; Skin Corrosion/Irritation, Category 1A, H314; Serious eye damage/irritation, Category 1, H318; Specific target organ toxicity - repeated exposure, Category 1, H372	-
Separator CAS: 9002-88-4 EC: 618-339-3 Index No.: -	2.2	Not Classified	-
Styrene-butadiene rubber (SBR) CAS: 9003-55-8 EC: 618-370-2 Index No.: -	0.8	Not Classified	-
Poly(vinylidene fluoride) (PVDF) CAS: 24937-79-9 EC: 607-458-6 Index No.: -	0.8	Not Classified	-
Carbon black CAS: 1333-86-4 EC: 215-609-9 Index No.: -	0.4	Not Classified	-

4 First-aid measures

4.1 Description of first aid measures

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

4.2 Most important symptoms/effects, acute and delayed

1	Please see section 11.
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4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Small fire or fire involving small battery: water spray only (large amounts); Large fire or fire involving large battery or multiple small batteries: Allow battery fire to burn itself out and protect surroundings. Safely remove undamaged containers from area. Apply water spray to neighboring batteries to reduce the spread of the hazard. A lithium ion battery fire may reignite at any point after the initial fire is extinguished, up to weeks later. Use thermal imaging, if available, to continuously monitor the battery. Reignition can be accompanied by off-gassing of white smoke or electrical arcs or sparks that reignite with visible flames or fire.
Unsuitable extinguishing media	Small fire or fire involving small battery: Do not use dry chemical, CO ₂ or Halon? The use of salt water for firefighting is not recommended since it may increase production of hydrogen and hydrogen fluoride gas.

5.2 Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expand or decompose explosively when heated or involved in fire.

5.3 Advice for firefighters

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

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3	Use personal protective equipment, do not breathe dust/fume.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

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

6.4 Reference to other sections

1	Personal Protective Equipment advice is contained in Section 8 of the SDS.
2	Disposal considerations advice is contained in Section 13 of the SDS.

7 Handling and storage

7.1 Precautions for safe handling

◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

◆ Measures to prevent fire

1	Keep away from heat/sparks/open flames/ hot surfaces.
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◆ Measures to prevent aerosol and dust generation

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

◆ Advice on general occupational hygiene

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

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

1	In addition to use mentioned in the Section 1.2, unforeseen other specific end uses.
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8 Exposure controls/personal protection

8.1 Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Graphite	Denmark	-	2.5(respirable aerosol)	-	5(respirable aerosol)
	Finland	-	2	-	-
	France	-	2(inhalable aerosol)	-	-
	Germany (DFG)	-	0.3	-	2.4
	Norway	-	5	-	-
	Poland	-	4	-	-
Aluminum Alloy	Denmark	-	5(inhalable aerosol)	-	10(inhalable aerosol)
	France	-	10(inhalable aerosol)	-	-
	Germany (DFG)	-	4	-	-
	Norway	-	5	-	-
	Poland	-	2.5	-	-

	Spain	-	1	-	-
Copper Foil	Denmark	-	0.1(fume, respirable fraction)	-	0.2(fume, respirable fraction)
	Finland	-	0.02	-	-
	France	-	0.2(fume, respirable fraction)	-	-
	Germany (DFG)	-	0.01	-	0.02
	Netherlands	-	0.1	-	-
	Norway	-	0.1	-	-
Carbon black	Denmark	-	3.5	-	7
	Finland	-	3.5	-	7
	France	-	3.5	-	-
	Norway	-	3.5	-	-
	Poland	-	4	-	-
	Spain	-	3.5	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate	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 series standard Determination of toxic substances in workplace air.

◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Lithium Iron Phosphate	Inhalation	No data available	No data available	No data available	4.2 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Graphite	Inhalation	No data available	No data available	1.2 mg/m3	1.2 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Aluminum Alloy	Inhalation	No data available	No data available	3.72 mg/m3	3.72 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Copper Foil	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

Dimethyl carbonate(DMC)	Inhalation	No data available	No data available	No data available	34.9 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Ethylene carbonate(EC)	Inhalation	No data available	No data available	No data available	15 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Ethyl methyl carbonate(EMC)	Inhalation	No data available	No data available	No data available	10.3 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Lithium hexafluorophosphate	Inhalation	No data available	No data available	No data available	0.931 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Separator	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Styrene-butadiene rubber (SBR)	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Poly (vinylidene fluoride) (PVDF)	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Carbon black	Inhalation	No data available	No data available	No data available	1 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Component	A	B	C	D	E	F	G	H
Graphite	No data available	No data available	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Aluminum Alloy	No data available	No data available	20 mg/L	No data available	No data available	No hazard identified	No data available	No data available
Copper Foil	6.3 µg/L	5.2 µg/L	230 µg/L	87 mg/kg sediment dw	676 mg/kg sediment dw	No hazard identified	65 mg/kg soil dw	No potential for bioaccum

								ulation
Dimethyl carbonate(DMC)	500 µg/L	50 µg/L	188 mg/L	No data available	No data available	No hazard identified	No data available	No potential for bioaccumulation
Ethylene carbonate(EC)	5.9 mg/L	590 µg/L	No hazard identified	28.3 mg/kg sediment dw	2.83 mg/kg sediment dw	No hazard identified	2.2 mg/kg soil dw	No potential for bioaccumulation
Ethyl methyl carbonate(EMC)	62 µg/L	6.2 µg/L	76 mg/L	233 µg/kg sediment dw	23.3 µg/kg sediment dw	No data available	10.2 µg/kg soil dw	33.3 mg/kg food
Lithium hexafluorophosphate	310 µg/L	31 µg/L	48 mg/L	7.73 mg/kg sediment dw	1.55 mg/kg sediment dw	No hazard identified	13.5 mg/kg soil dw	No potential for bioaccumulation
Carbon black	50 mg/L	No data available	No data available	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No potential for bioaccumulation

Note 1:

A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

Note 2:

The PNEC values of the remaining components not shown in the product are not available yet.

8.2 Exposure controls

8.2.1 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.

8.2.2 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.

8.2.3 Environmental exposure controls

Environmental exposure controls	No information available
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9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Colour	No information available
Odor	Non-irritating 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	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit: No information available; Lower limit: No information available
Vapor pressure(kPa)	Not applicable
Vapor density(Air = 1)	Not applicable
Relative density(Water=1)	No information available
Solubility(mg/L)	No information available
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity(mm ² /s)	Not applicable
Explosive properties	No information available
Oxidizing properties	No information available
Particle characteristics	No information available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Information with regard to physical hazard classes	No information available
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9.2.2 Other safety characteristics

Other safety characteristics	No information available
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10 Stability and reactivity

Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	No information available.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 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. Oxidants, halogen, interhalogen

	and mercury. Halogen, interhalogen, strong oxidant, water and acids.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

V5°/V5°α/DLFP-V5/V5BATTERY	
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

Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Ethylene carbonate(EC)	10000mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Carbon black	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Dimethyl carbonate(DMC)	13000mg/kg(Rat)	> 5000mg/kg(Rabbit)	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Lithium Iron Phosphate	Not Listed	Not Listed
Graphite	Not Listed	Not Listed
Aluminum Alloy	Not Listed	Not Listed
Copper Foil	Not Listed	Not Listed
Dimethyl carbonate(DMC)	Not Listed	Not Listed
Ethylene carbonate(EC)	Not Listed	Not Listed
Ethyl methyl carbonate(EMC)	Not Listed	Not Listed
Lithium hexafluorophosphate	Not Listed	Not Listed
Separator	Category 3	Not Listed
Styrene-butadiene rubber (SBR)	Category 3	Not Listed
Poly (vinylidene fluoride) (PVDF)	Not Listed	Not Listed
Carbon black	Category 2B	Not Listed

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Component	Endocrine disrupting properties
Lithium Iron Phosphate	No information available
Graphite	No information available
Aluminum Alloy	No information available
Copper Foil	No information available
Dimethyl carbonate(DMC)	No information available
Ethylene carbonate(EC)	No information available
Ethyl methyl carbonate(EMC)	No information available
Lithium hexafluorophosphate	No information available
Separator	No information available
Styrene-butadiene rubber (SBR)	No information available
Poly (vinylidene fluoride) (PVDF)	No information available
Carbon black	No information available

11.2.2 Other Information

Other Information	See Section 11.1
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12 Ecological information

12.1 Toxicity

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Lithium hexafluorophosphate	LC ₅₀ : 68mg/L (96h)(Fish)	No information available	No information available
Ethylene carbonate(EC)	LC ₅₀ : > 100mg/L (96h)(Fish)	EC ₅₀ : > 100mg/L (48h)(Crustaceans)	ErC ₅₀ : > 100mg/L (72h)(Algae)
Ethyl methyl carbonate(EMC)	LC ₅₀ : > 100mg/L (96h)(Fish)	EC ₅₀ : > 100mg/L (48h)(Crustaceans)	ErC ₅₀ : > 62mg/L (72h)(Algae)
Graphite	LC ₅₀ : 100mg/L (96h)(Fish)	No information available	No information available
Lithium Iron Phosphate	LC ₅₀ : > 28mg/L (96h)(Fish)	EC ₅₀ : > 28mg/L (48h)(Crustaceans)	ErC ₅₀ : > 24mg/L (72h)(Algae)
Aluminum Alloy	LC ₅₀ : 1.55mg/L (96h)(Fish)	No information available	No information available
Carbon black	LC ₅₀ : > 1000mg/L (96h)(Fish)	No information available	ErC ₅₀ : > 10000mg/L (72h)(Algae)
Copper Foil	LC ₅₀ : 0.665mg/L (96h)(Fish)	EC ₅₀ : 0.02mg/L (48h)(Crustaceans)	ErC ₅₀ : 7.9mg/L (96h)(Algae)
Dimethyl carbonate(DMC)	LC ₅₀ : ≥ 100mg/L (96h)(Fish)	EC ₅₀ : > 100mg/L (48h)(Crustaceans)	ErC ₅₀ : > 57.29mg/L (72h)(Algae)

Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae
Lithium hexafluorophosphate	NOEC: 3.1mg/L(Fish)	No information available	No information available

12.2 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
Ethylene carbonate(EC)	High	High
Ethyl methyl carbonate(EMC)	High	High
Separator	Low	Low

12.3 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
Ethylene carbonate(EC)	Low	Log Kow=-0.3388
Ethyl methyl carbonate(EMC)	Low	Log Kow=0.7247
Separator	Low	Log Kow=1.2658

12.4 Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Graphite	Low	23.74
Ethylene carbonate(EC)	Low	9.168
Ethyl methyl carbonate(EMC)	Low	15.22
Separator	Low	14.3

12.5 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Lithium Iron Phosphate	Insufficient information, temporarily unable to evaluate
Graphite	Not applicable
Aluminum Alloy	Not applicable
Copper Foil	Not applicable
Dimethyl carbonate(DMC)	Not PBT/vPvB
Ethylene carbonate(EC)	Not PBT/vPvB
Ethyl methyl carbonate(EMC)	Not PBT/vPvB
Lithium hexafluorophosphate	Not applicable
Separator	Insufficient information, temporarily unable to evaluate
Styrene-butadiene rubber	Insufficient information, temporarily unable to evaluate

(SBR)	
Poly (vinylidene fluoride) (PVDF)	Insufficient information, temporarily unable to evaluate
Carbon black	Not PBT/vPvB

12.6 Endocrine disrupting properties

Component	Endocrine disrupting properties
Lithium Iron Phosphate	No information available
Graphite	No information available
Aluminum Alloy	No information available
Copper Foil	No information available
Dimethyl carbonate(DMC)	No information available
Ethylene carbonate(EC)	No information available
Ethyl methyl carbonate(EMC)	No information available
Lithium hexafluorophosphate	No information available
Separator	No information available
Styrene-butadiene rubber (SBR)	No information available
Poly (vinylidene fluoride) (PVDF)	No information available
Carbon black	No information available

12.7 Other adverse effects

	No information available
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13 Disposal considerations

13.1 Waste treatment methods

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	Packagings shall conform to the packing group II performance level
Marine pollutant (Yes or no)	No

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	Packagings shall conform to the packing group II performance level

UN-ADR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES(including lithiumion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Packagings shall conform to the packing group II performance level

Maritime transport in bulk according to IMO instruments

◆ Transport in bulk according to Annex II of MARPOL and the IBC code	Not Available
◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code	Not Available
◆ Transport in bulk in accordance with the IGC Code	Not Available

15Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

International chemical inventory

Component	EC inventory	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIICS	ENCS
Lithium Iron Phosphate	×	✓	✓	✓	×	×	✓	×	×
Graphite	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aluminum Alloy	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper Foil	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dimethyl carbonate(DMC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ethylene carbonate(EC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ethyl methyl carbonate(EMC)	×	✓	×	✓	×	✓	✓	×	✓

Lithium hexafluorophosphate	✓	✓	×	✓	×	✓	✓	✓	×
Separator	×	✓	✓	✓	✓	✓	✓	✓	✓
Styrene-butadiene rubber (SBR)	×	✓	✓	✓	✓	✓	✓	✓	✓
Poly (vinylidene fluoride) (PVDF)	×	✓	✓	✓	✓	✓	✓	✓	✓
Carbon black	✓	✓	✓	✓	✓	✓	✓	✓	×

[EC inventory] 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

[AIICS] Australian. Inventory of Industrial Chemical (AIICS)

[ENCS] Japan Inventory of Existing & New Chemical Substances

European chemical inventory

Component	A	B	C	D	E	F	G	H	I
Lithium Iron Phosphate	×	×	×	✓	✓	×	×	×	×
Graphite	×	×	×	✓	✓	×	×	×	×
Aluminum Alloy	×	×	×	✓	✓	×	×	×	×
Copper Foil	×	×	×	✓	✓	×	×	×	×
Dimethyl carbonate(DMC)	×	×	×	✓	✓	×	×	×	×
Ethylene carbonate(EC)	×	×	×	✓	✓	✓	×	×	×
Ethyl methyl carbonate(EMC)	×	×	×	✓	✓	×	×	×	×
Lithium hexafluorophosphate	×	×	×	✓	✓	×	×	×	×
Separator	×	×	×	✓	×	×	×	×	×
Styrene-butadiene rubber (SBR)	×	×	×	✓	×	×	×	×	×
Poly (vinylidene fluoride) (PVDF)	×	×	×	✓	×	×	×	×	×
Carbon black	×	×	×	✓	✓	✓	×	×	×

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation

[B] Substances requiring authorisation under EU REACH regulation

[C] Substances restricted under EU REACH

[D] Pre-registered substances under EU REACH

[E] Registered substances under EU REACH

[F] Substance Evaluation – CoRAP under EU REACH

[G] List of priority substances under EU water policy (Directive 2455/2001/EC)

[H] Substances subject to POPs Regulation

[I] Substances proposed as POPs

Note:

“✓” Indicates that the substance included in the regulations.

“×” No data or not included in the regulations.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16 Other information

Information on revision

Creation Date	2025/06/26
Revision Date	-
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/>.
- [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-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

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