



Article Information Sheet

Section I – IDENTIFICATION

Important Note: As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Article information Sheet contains valuable information critical to the safe handling and proper use of the product. This AIS should be retained and available for employees and other users of this product.

1.1 Product identifier

Model name : EB-BR890ABY

Substance name : Lithium-ion batteries

Synonyms :

Lithium-ion Pack, Lithium-ion Battery, Li-Ion Pack, Li-Ion Battery

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

Relevant identified uses : Lithium-ion batteries

Uses advised against : Use for recommended use only

Further Information : Not available

1.3 Details of the supplier of the safety data sheet

Supplier : Amperex Technology Limited

Street address/P.O. Box : Dongguan Amperex Technology Limited

1 West Industrial Road, North Zone of SSL Sci. & Tech. Industry Park, Dongguan, Guangdong523808, P.R. China

Country ID/Postcode/Place : Guangdong Province, P.R China

Telephone number : 0086-0593-2576285

Responsible Department: Quality team

e-mail address of competent person responsible for the AIS: Not available

National contact : 0086-0593-2576285

1.4 Emergency Telephone

: 0086-0593-2576285

Opening hours : Not available

Other comments : Not available

1.5 Further Information

Battery-System: Lithium-ion (Li-ion)

Nominal Voltage:3.88V

Rated Capacity:0.35Ah

Wh rating:1.36Wh

Anode (negative electrode): based on intercalation graphite

Cathode (positive electrode): based on lithiated metal oxide (Cobalt)

Remark:



The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. AmpereX Technology Limited makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

Section II – HAZARDS IDENTIFICATION

※ This is a product that fulfills a certain function in solid state with specific shape without discharging any chemical substance in its use and has no obligation to write (M)SDS. Since this document contains the precautions for safe handling related to its materials or chemical substances consisting of this product, please note that these overall information is irrelevant to this product.

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No. 1272/2008 [CLP] and OSHA 29 CFR 1910.12

00 : Not classified

2.1.2 Additional information:

Classification of the substance or mixture.

Preparation Hazards and Classification: The product is a Lithium ion cell or battery and is therefore classified as an article and is not hazardous when used according to the recommendations of the manufacturer. The hazard is associated with the contents of the cell or battery. Under recommended use conditions, the electrode materials and liquid electrolyte are non-reactive provided that the cell or battery integrity remains and the seals remain intact. The potential for exposure should not exist unless the cell or battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the cell or battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as Hazardous.

Hazardous Materials Information Label (HMIS)

Health: Not available

Flammability: Not available

Physical Hazard: Not available

NFPA Hazard Ratings

Health: Not available

Flammability: Not available

Reactivity: Not available

2.2 Label elements

Hazard pictograms : Not applicable

Signal word : Not applicable

Hazard statement : Not applicable

Precautionary statements: Not applicable

Supplemental Hazard information (EU) : Not applicable

2.3 Other hazards :

Appearance, Color and Odor: Solid object with no odor.



Primary Routes(s) of Exposure: These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell or pack is mechanically, thermally, electrically or physically abused to the point of compromising the enclosure.

If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

Potential Health Effect(s):

Acute (short term): see Section 8 for exposure controls.

In the event that this cell or pack has been ruptured, the electrolyte solution contained within the cell would be corrosive and can cause burns to skin and eyes.

Inhalation: Inhalation of materials from a sealed cell is not an expected route of exposure. Vapors or mists from a ruptured cell may cause respiratory irritation.

Ingestion: Swallowing of materials from a sealed cell is not an expected route of exposure.

Swallowing the contents of an open cell can cause serious chemical burns to mouth, esophagus, and gastrointestinal tract.

Skin: Contact between the cell and skin will not cause any harm. Skin contact with the contents of an open cell can cause severe irritation or burns to the skin.

Eye: Contact between the cell and the eye will not cause any harm. Eye contact with the contents of an open cell can cause severe irritation or burns to the eye.

CHRONIC (long term): see Section 11 for additional toxicological data.

Interactions with other chemicals: Immersion in high conductivity liquids may cause corrosion and breaching of the cell or battery enclosure. The electrolyte solution inside of the cells may react with alkaline (basic) materials and present a flammability hazard.

Potential Environmental Effects: Not Available.

Section III – COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixture

	Chemical Name	CAS No.	*Mass range in cell(g/g%)
Cathode	Cobalt lithium dioxide	12190-79-3	15-40
Electrolyte Solvent	Ethyl propionate	105-37-3	15-40
Copper	Copper foil	7440-50-8	10-30
Aluminum	Aluminum foil	7429-90-5	10-30
Anode	Graphite	7782-42-5	7-25
Electrolyte Solvent	Ethylene Carbonate	96-49-1	0-15
	Propylene Carbonate	108-32-7	0-15
Electrolyte Salt	Lithium Hexafluorophosphate(1-)	21324-40-3	0-15
Electrolyte Additive	1,3-propanesultone	1120-71-4	0-1
Separator	Separator	9002-88-4	0-5
Carbon black	Carbon black	1333-86-4	0-1
SN (Succinonitrile)	Succinonitrile	110-61-2	0-1
Cobalt, Co	Cobalt, Co	7440-48-4	0-1



PP(Propyl Propionate)	Propyl Propionate	106-36-5	0-1
Aluminum Oxide	Aluminum Oxide	1344-28-1	0-1



Further Information

Because of the cell structure the dangerous ingredients will not be available if used properly.

During charge process a lithium graphite intercalation phase is formed.

Section IV – FIRST-AID MEASURES

※ This is a product that fulfills a certain function in solid state with specific shape without discharging any chemical substance in its use and has no obligation to write (M)SDS. Since this document contains the precautions for safe handling related to its materials or chemical substances consisting of this product, please note that these overall information is irrelevant to this product.

4.1 Description of first aid measures

Following eye contact :

- Rinse eyes with plenty of water for at least 15 minutes and seek medical attention.

Following skin contact :

- Remove contaminated clothing and wash before reuse.
- Immediately rinse contact area with plenty of clean water.
- Provide first aid to contacted area to prevent infection.
- Get medical attention.

Following inhalation :

- In case of inhalation of organic electrolyte mist, move from exposure to fresh air.
- If necessary give oxygen. Get medical attentio



Following ingestion :

- In case of ingestion of electrolyte don't induce vomiting.
- If patient is conscious and alert give 2~4 cupfuls of milk or water.
- Never give anything by mouth to an unconscious person.
- Get medical attention immediately.

Further Information :

- The following first aid measures are required only in case of exposure to interior battery components after damage of the external battery casing.
- Undamaged, closed cells do not represent a danger to the health.

4.2 Most important symptoms and effects, both acute and delayed

Acute effects : Not available

Delayed effects : Not available

4.3 Indication of immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Section V – FIRE-FIGHTING MEASURES

5.1 Extinguishing media

- When the scale of the fire is small, use a HFC (hydrofluorocarbon) clean-agent fire extinguisher or alcohol resistant foam fire extinguishers. (In case of battery overheating, wear protective gear and immerse heated battery in water)
- In case of large fire, use large amount of water to extinguish.

5.2 Special hazards arising from the substance or mixture

- Flammable gas leaks before ignition and then the product ignites.

5.3 Advice for firefighters

- The ignited battery has a high temperature, so there is a risk of additional ignition even if the fire is extinguished at early stage. Sprinkle a large amount of water until the battery temperature drops to normal temperature.
- If the battery is ignited in multi-stacked condition, multi-stack should be disassembled and then extinguished so that heat is not transferred between batteries
- In the event of a battery fire, cool it by spraying water directly on the battery.
- When handling a overheated battery, wear heat-resistant protective equipment.

Section VI – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel



Protective equipment : Use personal protective equipment, see Section 8

Emergency procedures :

- In case of cell damage, possible release of dangerous substances and a flammable gas mixture.
- Eliminate all ignition sources.
- Please note that materials and conditions to avoid.
- Battery may emit electrolyte if charging or discharging rates exceed manufacturer's recommendations or if pack has been breached.
- Move battery to well ventilated area to prevent gas accumulation.

For emergency responders

- Eliminate all ignition sources.
- Please note that materials and conditions to avoid.
- Move battery to well ventilated area to prevent gas accumulation.

6.2 Environmental precautions :

- Avoid release to the environment.
- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

For containment : Not available

For cleaning up :

- Cover with Dry earth, DRY sand or other non-combustible material and put on the plastic sheet to minimize spreading or contact with rain.
- Move battery to well ventilated area to prevent gas accumulation.
- Dispose in accordance with applicable local, state and federal regulations.

Other information: Not available

6.4 Reference to other sections

- See also sections 8 and 13 of the Safety Data Sheet.

Section VII – HANDLING AND STORAGE

7.1 Precautions for safe handling

- In case of cell damage, possible release of dangerous substances and a flammable gas mixture.
- The battery stores electrical energy and is capable of rapid energy discharge.
- Battery cell contents are under pressure.
- Handle battery carefully to avoid puncturing case or electrically shorting terminals.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions : Not available

Packaging materials : Not available

Requirements for storage rooms and vessels :

- Storage at room temperature (approx. 20°C) at approx. 40% of the nominal capacity
- Keep in closed original container.



7.3 Specific end use(s)

Recommendations : Not available

Industrial sector specific solutions : Not available

Section VIII – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limits

Name	ACGIH regulation	Biological exposure index	OSHA regulation	NIOSH regulation	EU regulation
cobalt lithium dioxide	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Cobalt, Co	TWA = 0.02 mg/m ³	Not available	TWA = 0.1 mg/m ³	TWA 0.05 mg/m ³	Not applicable
Graphite	TWA = 2mg/m ³	Not available	Not applicable	Not applicable	Not applicable
Copper	TWA = 0.2 mg/m ³ (fume)	Not available	Not applicable	Not applicable	Not applicable
Aluminium	TWA = 1 mg/m ³ (respirable particulate matter)	Not available	TWA = 15 mg/m ³ (Aluminum Metal (as Al) Total dust) TWA = 5 mg/m ³ (Aluminum Metal (as Al) Respirable fraction)	TWA = 1 mg/m ³ (Aluminum Metal (as Al),Respirable fraction)	Not applicable
PP (Propyl Propionate)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Polyethylene	Not applicable	Not available	Not applicable	Not applicable	Not applicable
EP (Ethyl Propionate)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
EC (Ethylene Carbonate)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Aluminium Oxide	TWA = 1 mg/m ³ (respirable particulate matter)	Not available	TWA = 15 mg/m ³ (Aluminum Metal (as Al) Total dust) TWA = 5 mg/m ³ (Aluminum Metal (as Al) Respirable fraction)	TWA = 1 mg/m ³ (Aluminum Metal (as Al),Respirable fraction)	Not applicable



LiPF ₆ (Lithium hexafluorophosphate)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
PC (Propylene Carbonate)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Carbon black	TWA = 3mg/m ³ (inhalable particulate matter)	Not available	TWA = 3.5 mg/m ³	TWA = 3.5 mg/m ³ Ca TWA = 0.1 mg PAHs/m ³ [Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs)]	Not applicable
SN (Succinonitrile)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
1,3-propanesultone	Not applicable	Not available	Not applicable	Not applicable	Not applicable

8.2 Exposure controls

8.2.1 Appropriate engineering controls :

Substance/mixture related measures to prevent exposure during identified uses:

- Avoid charging batteries in areas where hydrogen gas accumulate.
- Use local exhaust ventilation to maintain concentrations of hydrogen below the Lower Explosive collect and transport flammable gases in ventilation systems.
- Insure proper ventilation is present and electrolyte mist and vapours.

Structural measures to prevent exposure:

- Avoid charging batteries in areas where hydrogen gas accumulate.
- Use local exhaust ventilation to maintain concentrations of hydrogen below the Lower Explosive collect and transport flammable gases in ventilation systems.
- Insure proper ventilation is present and electrolyte mist and vapours.

Organisational measures to prevent exposure: Not available

Technical measures to prevent exposure:

- Insure proper ventilation is present and electrolyte mist and vapours.

8.2.2 Individual protection measures, such as personal protective equipment :

Eye and face protection

- Wear ANSI approved safety glasses with side shield during normal use.
- Wear NIOSH approved face shield with safety glasses and H.V protection during intentional disassembly.

Skin protection

Hand protection



- Wear nitrile butyl rubber, neoprene, or PVC glove during battery component disassembly.
- Discard contaminated work clothing after one work day.

Other skin protection

- Wear protective clothing during battery component disassembly.
- Discard contaminated work clothing after one work day.

Respiratory protection :

- None required during normal use.
- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained oxygen breathing apparatus.
- In case exposed to particulate material, the respiratory protective equipments as follow are recommended; facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use (dust, mist, fume)

8.2.3 Environmental exposure controls

Substance/mixture related measures to prevent exposure: Not available

Instruction measures to prevent exposure: Not available

Organisational measures to prevent exposure: Not available

Technical measures to prevent exposure: Not available

Section IX – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Description : Solid

Color : Not available

Odor : Odorless

Odor threshold : Not available

pH : Not available

Melting point/freezing point : Not available

Initial boiling point and boiling range : Not available

Flash point : Not available

Evaporation rate : Not available

Flammability (solid, gas) : Not available

Upper/lower flammability or explosive limits : Not available

Vapor pressure : Not available

Solubility (ies) : insoluble.

Vapor density : Not available

Relative density : Not available

Partition coefficient: n-octanol/water : Not available



Auto ignition temperature : Not available

Decomposition temperature : Not available

Viscosity : Not available

Explosive properties : Not available

Oxidizing properties : Not available

Molecular weight : Not available

9.2 Other information

Not available

Section X – STABILITY AND REACTIVITY

Lithium-ion battery is considered to be non reactive under normal use conditions.

10.1 Reactivity

- Stable at ambient temperature.

10.2 Chemical stability

- There is no hazard when the measures for handling and storage are followed.
- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Will not occur under normal conditions.
- In case of cell damage, possible release of dangerous substances and a flammable gas mixture.
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Inhalation of material may be harmful.

10.4 Conditions to avoid

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Friction, heat, sparks or flames
- Dusts or shavings from borings, turnings, cuttings, etc.
- Do not exceed manufacturer's recommendation for charging or use battery for an application for which it was not specifically designed.
- Do not electrically short.

10.5 Incompatible materials

- Avoid contact with acids and oxidizers.
- Keep away from any possible contact with water, because of violent reaction and possible flash fire.
- Handle under inert gas. Protect from moisture.
- Combustibles, reducing agents

10.6 Hazardous decomposition products

- None under normal conditions.



- Corrosive and/or toxic fume
- Material may produce irritating and highly toxic gases from decomposition by heat and combustion during burning.
- Irritating and/or toxic gases

Section XI – TOXICOLOGICAL INFORMATION

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11.1 Information on toxicological effects

Acute toxicity

Oral : Not classified (ATEmix = 194 mg/kg bw)

- Graphite : Rat LD₅₀ > 2,000 mg/kg (female)(OECD Guideline 401)
- Copper : Rat LD₅₀ > 2,500 mg/kg (Cupric oxide; read across)(OECD TG 423, GLP)
- Aluminum : Rat LD₅₀ > 15,900 mg/kg (OECD TG 401)(Fumed alumina; read across)
- Propyl propionate : Rat LD₅₀ = 11.7 mg/kg (OECD Guideline 401)
- Polyethylene : Rat LD₅₀ > 2,000 mg/kg
- Ethyl propionate : Rat LD₅₀ > 5,000 mg/kg (OECD Guideline 423, GLP)
- EC (Ethylene Carbonate) : Rat LD₅₀ = 10,400 mg/kg (male) (OECD Guideline 401)
- aluminium oxide : Rat LD₅₀ > 15,900 mg/kg (OECD Guideline 401)
- Lithium hexafluorophosphate(1-) : Rat LD₅₀ = 50 ~ 300 mg/kg (Female)(OECD Guideline 423, GLP)
- Propylene carbonate : Rat LD₅₀ > 5,000 mg/kg (OECD TG 401, GLP)
- Carbon black : Rat LD₅₀ > 8,000 mg/kg (male/female) (OECD Guideline 401)
- SN (Succinonitrile) : Rat LD₅₀ = 300 ~ 2,000 mg/kg (female) (OECD Guideline 423, GLP)
- 1,3-propanesultone : Rat LD₅₀ > 2000 mg/kg (OECD Guideline 401, GLP)

Dermal : Not classified (ATEmix = 106 mg/kg bw)

- Copper : Rat LD₅₀ > 2,000 mg/kg (OECD TG 402, GLP)
- Propyl propionate : LD₅₀ = 16 mg/kg (OECD Guideline 402)
- Ethyl propionate : Rat LD₅₀ > 2,000 mg/kg (OECD Guideline 402, GLP)
- EC (Ethylene Carbonate) : Rat LD₅₀ > 2,000 mg/kg (male/female) (OECD Guideline 402)
- Propylene carbonate : Rabbit LD₅₀ > 20,000 mg/kg
- Carbon black : Rabbit LD₅₀ > 3,000 mg/kg
- SN (Succinonitrile) : Rat LD₅₀ > 2,000 mg/kg (male/female) (OECD Guideline 402, GLP)
- 1,3-propanesultone : Guinea pig LD₅₀ = 700~1400 mg/kg

Inhalation : Not classified (ATEmix = 302 mg/kg bw)

- Graphite : Rat LD₅₀ > 2 mg/L/4hr (male/female) (OECD Guideline 403)
- Aluminum : Rat LC₅₀ > 0.888 mg/L/4hr (analytical) (OECD TG 403)
- Propyl propionate : Rat LT₅₀ = 14031.58 ppm/6hr(OECD Guideline 403)
- EC (Ethylene Carbonate) : Rat LC₀ = 730 mg/m³ /8hr
- aluminium oxide : Rat LD₅₀ > 0.888 mg/L/4hr (OECD Guideline 403)



- Carbon black : Rat LD₅₀ > 4.6 mg/m³/4hr
- SN (Succinonitrile) : Rat LC₅₀ ≥ 2.67 mg/L/4hr (male/female) (OECD Guideline 403)
- 1,3-propanesultone : Rat LC₀ > 1.3 mg/L/6hr (OECD Guideline 403)

Skin corrosion/ irritation : Not classified

- Graphite : In the skin irritation test using rabbits, the test material was not irritating. (OECD Guideline 404, GLP)
- Copper : In test on skin irritation with rabbits, skin irritations were not observed. (OECD TG 404, GLP)
- Aluminum : Aluminium oxide caused slight erythema in 2/12 rabbits. The observed effects do not lead to a classification. Aluminium oxide is, therefore, not considered to be a primary skin irritant. (OECD TG 404) (Read across; aluminium oxide)
- Propyl propionate : In the skin irritation test using rabbits, the test material was not irritating. (OECD Guideline 404)
- Polyethylene : No irritation was observed at the other two treated sites and no corrosive effects were noted during the study using rabbits. The primary irritation index was calculated as 0.2 and polyethylene was classified as a mild irritant.
- Ethyl propionate : In the skin irritation test using rabbits, the test material was irritating. (OECD Guideline 439, GLP)
- EC (Ethylene Carbonate) : In the skin irritation test using rabbits, the test material was not classified. (OECD Guideline 404, GLP)
- aluminium oxide : In the skin irritation test using rabbit, skin irritation was not observed. (OECD Guideline 404)
- Lithium hexafluorophosphate(1-) : In the skin irritation test using human, the test material was corrosive. (EU Method B.40, GLP)
- Propylene carbonate : In skin irritation test with rabbits, skin irritations were not observed. (OECD TG 404, GLP)
- Carbon black : In test on skin irritation with rabbits, skin irritations were not observed. (OECD Guideline 404)
- SN (Succinonitrile) : In the skin irritation test using rabbits, the test material was not irritating. (OECD Guideline 404)
- 1,3-propanesultone : In the skin irritation test using guinea pigs, the test material was corrosive. (TOXICITY STUDIES OF 1,2-OXATHIOLANE, 2,2-DIOXIDE WITH COVER LETTER DATED 09/01/92)

Serious eye damage/ irritation : Not classified

- Graphite : In the eye irritation test using rabbit, the test material was not irritating. (OECD Guideline 405, GLP)
- Copper : In test on skin irritation with rabbits, skin irritations were not observed. (OECD TG 405, GLP)
- Aluminum : An eye irritation study of the aluminium oxide was performed in rabbits. No eye irritation/ corrosion effects were observed. (Read across; aluminium oxide)
- Propyl propionate : In the eyes irritation test using rabbits, the test material was not irritating. (OECD Guideline 405)
- Polyethylene : Mild irritants were observed in eye irritation test with rabbits. (Score 11.7/110)
- Ethyl propionate : In the eyes irritation test using cattle, the test material was not irritating. (OECD Guideline 437, GLP)
- EC (Ethylene Carbonate) : In the eye irritation test using rabbit, the test material was moderately irritating. (OECD Guideline 405, GLP)
- aluminium oxide : The slight erythema was reversible, resolving by 48 hours post administration of the test substance. The scores observed for conjunctival erythema would not lead to a classification under EU-CLP (Regulation (EC) 1272/2008) (OECD Guideline 405).
- Lithium hexafluorophosphate(1-) : In the eye irritation test using fertilised brown leghorn chicken eggs, the test material was severely irritating. (GLP)



- Propylene carbonate : In eye irritation test with rabbits, eye irritations were observed. (OECD TG 405, GLP)
- Carbon black : In test on eyes irritation with rabbits, eyes irritations were not observed. (OECD Guideline 405)
- SN (Succinonitrile) : In the eye irritation test using rabbit, the test material was not irritating. (OECD Guideline 405)
- 1,3-propanesultone : In the eye irritation test using rabbits, the test material was corrosive. (TOXICITY STUDIES OF 1,2-OXATHIOLANE,2,2-DIOXIDE WITH COVER LETTER DATED 09/01/ 92)

Respiratory sensitization : Not classified

- Aluminum : Al₂O₃ was the least inflammatory material tested and led to only weak effects on the mouse lung. (Read across; Aluminium oxide)
- aluminium oxide : In the respiratory sensitisation test using mouse, this material was not respiratory sensitising.
- Carbon black : In respiratory sensitization test with mice(female), it did not induce respiratory sensitization.

Skin sensitization : Not classified

- Graphite : In the skin sensitization test using mice, the test material was not skin sensitization. (OECD Guideline 429, GLP)
- Copper : In maximization test on skin sensitization with guinea pig, skin sensitization was not observed. (OECD TG 406, GLP)
- Aluminum : In test with guinea pigs, it can be concluded that aluminium oxide has no sensitisation potential under the experimental conditions. (Read across; Aluminium oxide)
- Propyl propionate : In the skin sensitization test using mouse, this material was not skin sensitizing.(OECD Guideline 429, GLP)
- Polyethylene : No reactions were observed in skin sensitization test with guinea pigs.
- Ethyl propionate : In the skin sensitization test, this material was not skin sensitizing.(OECD Guideline 442D, GLP)
- EC (Ethylene Carbonate) : In the skin sensitization test using guinea pig, this material was not classified. (OECD Guideline 406, GLP)
- aluminium oxide : In the skin sensitisation test using guinea pig, skin sensitisation was not observed.
- Lithium hexafluorophosphate(1-) : In the skin sensitization test using mice, the test material was not skin sensitization. (OECD Guideline 429, GLP)
- Propylene carbonate : In patch-test with human, skin sensitizations were not observed.
- Carbon black : In skin sensitization test with guinea pig(female), it did not induce skin sensitization. (OECD Guideline 406, GLP)
- SN (Succinonitrile) : In the skin sensitization test using mice, the test material was not classified. (OECD Guideline 429, GLP)
- 1,3-propanesultone : In the skin sensitization test using guinea pigs, the test material was not skin sensitizing. (OECD Guideline 406)

Carcinogenicity : Not classified**IARC**

- Cobalt and inorganic compounds : Group 2B
- Carbon black : Group 2B
- Polyethylene : Group 3
- Carbon black : Group 2B
- 1,3-propanesultone : Group 2A

OSHA

- Carbon black : Present
- 1,3-propanesultone : Present

NTP

- Carbon black : Present



- 1,3-propanesultone : Present

ACGIH

- Cobalt and inorganic compounds : A3
- Aluminum : A4
- Carbon black : A3
- 1,3-propanesultone : A3

KOREA-ISHL

- Cobalt and inorganic compounds : 2
- Carbon black : 2
- 1,3-propanesultone : 1B

EU

- 1,3-propanesultone : Carc. 1B

- Copper : EPA IRIS: D In carcinogenicity study with rat, tumor was not observed.
- Polyethylene : Fifty rats were implanted with polyethylene. In the polyethylene group, 23 developed tumors (two of these were unrelated to the implants).
- Propylene carbonate : In carcinogenicity test with mice, there were no evidence of carcinogenic effects. (OECD TG 451, GLP)
- Carbon black : Most of the tumours were benign squamous cysts, but a high incidence of adenocarcinoma was also found in all groups. (OECD Guideline 451)

Mutagenicity : Not classified

- Graphite : Negative reactions were observed in vitro (Bacterial Reverse Mutation Assay(OECD Guideline 471, GLP)).
- Copper : Negative reactions were observed in both in vitro(Ames test) and in vivo(DNA damage and/or repair; unscheduled DNA synthesis, micronucleus assay). (GLP)
- Aluminum : Negative reactions were observed in vitro (mammalian cell gene mutation assay with mouse lymphoma L5178Y cells(OECD TG 476, GLP)) and in vivo (micronucleus assay with rats (OECD TG 474, GLP)). (Aluminium hydroxide, aluminium chloride, aluminum oxide; read across)
- Propyl propionate : Negative reactions were observed in vitro Bacterial Reverse Mutation Assay(OECD Guideline 471, GLP).
- Polyethylene : Negative reactions were observed in Ames test using Salmonella typhimurium and Escherichia coli.
- Ethyl propionate : Negative reactions were observed in vitro Bacterial Reverse Mutation Assay(OECD Guideline 471, GLP).
- EC (Ethylene Carbonate) : Negative reactions were observed in vitro (mammalian cell gene mutation assay (OECD Guideline 476, GLP)).
- aluminium oxide : In the mammalian erythrocyte micronucleus test, the results were positive for the nano-sized materials(below 40nm) with evidence of a positive dose-response relationship for MN(OECD Guideline 75). Positive reactions were observed in Mammalian Erythrocyte Micronucleus Test(OECD Guideline 474, GLP).
- Lithium hexafluorophosphate(1-) : Negative reactions were observed in both in vivo (Mammalian Erythrocyte Micronucleus test(OECD Guideline 474)) and in vitro (Bacterial Reverse Mutation Assay(OECD Guideline 471, GLP)).
- Propylene carbonate : Negative reactions were observed both in vitro(DNA damage and repair assay(OECD TG 482, GLP), bacterial reverse mutation assay(OECD TG 471, GLP)) and in vivo(micronucleus assay(OECD TG 474, GLP)) .
- Carbon black : Negative reactions were observed in both in vitro(Bacterial Reverse Mutation Assay test(OECD Guideline 471, GLP))and in vivo(DNA damage and/or repair test).
- SN (Succinonitrile) : Negative reactions were observed in both in vivo (Mammalian Erythrocyte Micronucleus test(OECD Guideline 474, GLP)) and in vitro (Bacterial Reverse Mutation Assay(OECD Guideline 471, GLP)).



- 1,3-propanesultone : Positive reactions were observed in in vivo test (Mammalian Erythrocyte Micronucleus Test(OECD Guideline 474, GLP))

Reproductive toxicity : Not classified

- Copper : In reproductive toxicity with rats, there were no effects considered (up to 1500 ppm). (OECD TG 416, GLP)
- Aluminum : No reproduction, breeding and early post-natal developmental toxicity was observed in rats at 1000 mg/kg bw for males and females. (OECD TG 422, GLP)(Aluminium chloride; read across)
- Propyl propionate : In the reproduction toxicity test using rat, no effects were observed.(OECD Guideline 422)
- Ethyl propionate : No test item-related adverse effects for general toxicity effects and reproductive/developmental effects were observed up to 1000 mg/kg.(OECD Guideline 422, GLP)
- aluminium oxide : In summary, clinical observations that were found associated with treatment, either directly or secondary to renal failure, were poor coat, weight loss, diarrhea, and haematuria. However, reproductive effects observed were not specified.(OECD Guideline 426 and OECD Guideline 452, GLP)
- Lithium hexafluorophosphate(1-) : In the two-generation reproductive toxicity with rats, no effects observed on reproductive toxicity. (male/female)(OECD Guideline 416, GLP)(OECD Guideline 414)(Information on major hydrolysis product of the registered substance (released rapidly on contact with water/moisture))
- Propylene carbonate : In reproduction/developmental toxicity test with rats, no treatment-related effects on reproduction were observed. (OECD TG 414, GLP)
- Carbon black : No adverse effects on the reproductive function are expected.(OECD Guideline 414)

Specific target organ toxicity (single exposure) : Not classified

- Copper : All animals showed expected gains in bodyweight over the study period and there were no abnormalities noted at necropsy. (OECD TG 423, GLP)
- Aluminum : In test using rats, Clinical signs of depression, laboured respiration, piloerection and hunched appearance was noted at the highest dose 15900 mg/kg. Macroscopic examination at the end of the observation period did not reveal any aluminium-related changes of the internal organs of the aluminium treated animals compared to the control group. (OECD TG 401)(Fumed alumina; read across)
- Polyethylene : No test substance-related toxic effects were observed in an acute oral toxicity study with rats.
- aluminium oxide : Inhalation of aluminium oxide at a concentration of 0.38 mg/L (380 mg/cu m) for 3, 7 or 15 minutes produced a time-dependent lung dilatory effect.
- Lithium hexafluorophosphate(1-) : Clinical signs observed during the study period were lethargy, hunched posture, uncoordinated movements, piloerection at 300 mg/kg, hunched posture, piloerection at 50 mg/kg. The surviving animals had recovered from the symptoms by Day 3.(OECD Guideline 423, GLP)
- Propylene carbonate : In acute oral toxicity with rats, acute toxicity were not observed. (OECD TG 401, GLP)
- Carbon black : No effect on endothelins or blood pressure was observed after exposure to carbon black. There were also no effects on body temperature and activity of the animals.
- 1,3-propanesultone : In the acute oral toxicity test with rats, during days 4 and 13, dehydration, decreased respiratory rate, gasping, laboured and noisy respiration were observed. (OECD Guideline 401, GLP)

Specific target organ toxicity (repeat exposure) : Not classified

- Copper : In test with rats for 92 days, there were no mortalities or signs of clinical toxicity observed in any of the test species during the duration of the study. Ophthalmoscopic examinations revealed no abnormalities at any dose level tested. At gross pathology, significant decreases in heart and kidney weight were noted in the high dose males in the thymus and kidneys of high dose females. (GLP)
- Aluminum : On occasion workers chronically exposed to aluminum-containing dusts or fumes have developed severe pulmonary reactions including fibrosis, emphysema and pneumothorax.



- Polyethylene : No significant adverse effects were observed in subchronic (90-day) oral toxicity study with rats and dogs.
- Ethyl propionate : no test item-related adverse effects for general toxicity effects and reproductive/developmental effects were observed.(OECD Guideline 422, GLP)
- aluminium oxide : In the repeated exposure of aluminium oxide, it is occurred to asbestosis to human lung.
- Lithium hexafluorophosphate(1-) : According to expert review of fluoride intake and effects on human health, fluoride intake in drinking water at levels close to or above 4 mg/l is associated with dental fluorosis and perhaps also bone fluorosis and/or weakening.; Damage to dental enamel recorded: especially notable in young animals, which also showed atrophy of respiratory organs/tissues with local oedema of bronchial mucosa. Older animals showed peribronchial hyperplasia. Animals around 1 year in age showed cavity formation in their bones.(Information on major hydrolysis product of the registered substance (released rapidly on contact with water/moisture))(OECD Guideline 412)
- Propylene carbonate : In oral repeated-dose toxicity study with rats for 90 days, no treatment related adverse effects were observed. (OECD TG 408, GLP)
- Carbon black : Mice were continuously fed various types of carbon black in massive quantities (10% in diet) for 12 to 18 months. This led to no detectable changes from the normal in the organs and tissues of the mice fed.

Aspiration Hazard : Not available

Section XII – ECOLOGICAL INFORMATION

※ This is a product that fulfills a certain function in solid state with specific shape without discharging any chemical substance in its use and has no obligation to write (M)SDS. Since this document contains the precautions for safe handling related to its materials or chemical substances consisting of this product, please note that these overall information is irrelevant to this product.

12.1 Ecological toxicity

- Acute toxicity : Not classified (ATEmix = 0.20 mg/L)
- Chronic toxicity : Not classified

Fish

- cobalt lithium dioxide : 96hr-LC₅₀ (other) = 54.1 mg/L (Read across; cobalt (II) chloride hexahydrate), 34d-NOEC (*Pimephales promelas*) = 0.21 mg/L
- Graphite : 96hr-LC₅₀ > 100 mg/L
- Aluminum : 96hr-LC₅₀ > 218.64 mg/L (GLP)(Read across; aluminium chloride hexahydrate), 28d-NOEC (*Pimephales promelas*) = 4.7 mg/L (Read across; aluminium sulphate)
- Propyl propionate : 96hr-LC₅₀ = 10.8 mg/L 96h-NOEC=2.86mg/l (OECD Guideline 203, GLP)
- Ethyl propionate : 96hr-LC₅₀ = 6.74 mg/L (OECD Guideline 203, GLP)
- EC (Ethylene Carbonate) : 96hr-LC₅₀ > 100 mg/L (OECD Guideline 203, GLP)
- aluminium oxide : 96hr-LC₅₀ = 1.16 mg/L (WoE, USEPA 1985), 7d-NOEC(*Pimephales promelas*) = 0.16 mg/L
- Lithium hexafluorophosphate(1-) : 96hr-LC₅₀ = 51 ~ 193 mg/L Information on major hydrolysis product of the registered substance (released rapidly on contact with water/moisture); 21d-NOEC = 4 mg F-/L
- Propylene carbonate : 96hr-LC₅₀ > 1000 mg/L (GLP)
- Carbon black : 96hr-LC₅₀ = 1000 mg/L (OECD Guideline 203, GLP)
- 1,3-propanesultone : 96hr-LC₅₀(*Leuciscus idus*) = 420 mg/L (OECD Guideline 203, GLP)

Crustacean

- cobalt lithium dioxide : 48hr-EC₅₀ (other) = 2.618 mg/L (GLP)(Read across; cobalt (II) chloride hexahydrate), 42d-NOEC (*Neanthes arenaceodentata*) = 0.713 mg/L (ASTM Method E1562, GLP)



- Graphite : 48hr-EC₅₀ > 100 mg/L
- Aluminum : 48hr-LC₅₀ = 0.071 mg/L (Read across; CAS 13473-90-0), 8d-NOEC (*Ceriodaphnia dubia*) = 4.9 mg/L (Read across; CAS 7784-13-6)
- Propyl propionate : 24hr-EC₅₀ = 59.6 mg/L (OECD Guideline 202, GLP)
- Ethyl propionate : 48hr-EC₅₀ = 25.5 mg/L (OECD Guideline 202, GLP), 21d-NOEC=1.3mg/L(OECD Guideline 211)
- EC (Ethylene Carbonate) : 48hr-EC₅₀ > 100 mg/L (OECD Guideline 202, GLP)
- aluminium oxide : 48hr-EC₅₀ = 1.9 mg/L ,21d-NOEC(*Daphnia magna*)= 0.076 mg/L(OECD Guideline 211, GLP)
- Lithium hexafluorophosphate(1-) : 48hr-LC₅₀ > 100 mg/L (OECD Guideline 202, GLP);21d-NOEC(*Daphnia magna*) = 10 mg/L (Information on major hydrolysis product of the registered substance (released rapidly on contact with water/moisture)) (OECD guideline 202, GLP)
- Propylene carbonate : 48hr-EC₅₀ > 1000 mg/L (OECD TG 202, GLP)
- Carbon black : 24hr-EC₅₀ > 5600 mg/L (OECD Guideline 202, GLP)
- 1,3-propanesultone : 48hr-EC₅₀(*Daphnia magna*) = 16 mg/L (OECD Guideline 202, GLP)

Algae

- cobalt lithium dioxide : 96hr-EC₅₀ (other) = 71.314 mg/L (Read across; cobalt (II) chloride hexahydrate), 96hr-NOEC (*Dunaliella tertiolecta*) = 4.672 mg/L
- Graphite : 72hr-EC₅₀ > 100 mg/L
- Aluminum : 72hr-EC₅₀ = 0.0169 mg/L (OECD TG 201), (Read across; CAS 13473-90-0)
- Propyl propionate : 96hr-EC₅₀ > 1004 mg/L, 96h-NOEC=245mg/L(OECD Guideline 201, GLP)
- Ethyl propionate : 72hr-EC₅₀ = 130 mg/L (*Pseudokirchneriella subcapitata*) (OECD Guideline 201, GLP)
- EC (Ethylene Carbonate) : 72hr-EC₅₀ > 100 mg/L (OECD Guideline 201, GLP), 72hr-NOEC(*Selenastrum capricornutum*) = 100mg/L (OECD Guideline 201, GLP)
- aluminium oxide : 72h-NOEC(*Pseudokirchneriella subcapitata*) >= 0.044 mg/L (OECD Guideline 201, GLP)
- Lithium hexafluorophosphate(1-) : 96hr-EC₅₀ > 100 mg/L ; 96h-NOEC = 22 mg/L (OECD Guideline 201, GLP)
- Propylene carbonate : 72hr-EC₅₀ > 900 mg/L (OECD TG 201, GLP)
- Carbon black : 72hr-EC₅₀ > 10000 mg/L , 72hr-NOEC > 10,000mg/L (OECD Guideline 201, GLP)
- 1,3-propanesultone : 72hr-EC₅₀(*Desmodesmus subspicatus*) > 320 mg/L (OECD Guideline 201, GLP)

B. Persistence and degradability**Persistence**

- Graphite : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.78)
- Aluminum : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.33) (estimated)
- EC (Ethylene Carbonate) : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.11) (20 °C, pH> 5.33 - < 5.79)(EU Method A.8, GLP)
- aluminium oxide : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -0.83) (estimated)
- Lithium hexafluorophosphate(1-) : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.354) (20 °C, pH > 6.5 - < 7.5)(OECD Guideline 107, GLP)
- Propylene carbonate : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.0788)
- SN (Succinonitrile) : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -0.99)
- 1,3-propanesultone : Low persistency (log Kow is less than 4 estimated.) (log Kow = -2.86) (QSAR)

Degradability : Not available

C. Bioaccumulative potential**Bioaccumulation**

- cobalt lithium dioxide : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 23) (Read across; 57CoCl)



- Graphite : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 2.433$)
- Copper : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 0.02 \sim 20$)
- Aluminum : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3.162$) (estimated)
- EC (Ethylene Carbonate) : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3.162$) (estimated)
- aluminium oxide : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3.162$) (estimated)
- Lithium hexafluorophosphate(1-) : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF < 31$)
- Propylene carbonate : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3$) (Estimated)
- SN (Succinonitrile) : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3$) (estimated)
- 1,3-propanesultone : Bioaccumulation is expected to be low according to the $BCF < 500$ ($BCF = 3.162$) (estimated)

Biodegradation

- Propyl propionate : The test material is readily biodegradable.
- Polyethylene : As not well-biodegraded, it is expected to have high accumulation potential in living organisms (= 0% biodegradation was observed after 28 days)
- Ethyl propionate : As well-biodegraded, it is expected to have low accumulation potential in living organisms (66% ~ 68% biodegradation was observed after 28 days) Readily biodegradable: 66 - 68% within 28 days (OECD 301 D, GLP)
- EC (Ethylene Carbonate) : As well-biodegraded, it is expected to have low accumulation potential in living organisms (70% ~ 80% biodegradation was observed after 10 days) (OECD Guideline 301 A, GLP)
- aluminium oxide : Not readily biodegradable(estimated)
- Lithium hexafluorophosphate(1-) : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 86% biodegradation was observed after 28 days) (OECD Guideline 301 C, GLP)
- Propylene carbonate : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 87.7% biodegradation was observed after 29 days) (OECD TG 301B, GLP)
- Carbon black : carbon black is an inorganic substance and will not biodegraded by microorganisms.
- SN (Succinonitrile) : As not well-biodegraded, it is expected to have high accumulation potential in living organisms (= 45.1% biodegradation was observed after 4 days)
- 1,3-propanesultone : As well-biodegraded, it is expected to have low accumulation potential in living organisms(89% biodegradation was observed after 28 days) (OECD Guideline 301E, GLP)

12.4 Mobility in soil

- EC (Ethylene Carbonate) : Low potency of mobility to soil. ($K_{oc} = 3.219$) (estimated)
- aluminium oxide : Low potency of mobility to soil. ($K_{oc} = 0.1902$) (estimated)
- Propylene carbonate : Low potency of mobility to soil. ($K_{oc} = 14$) (Estimated)
- SN (Succinonitrile) : Low potency of mobility to soil. ($K_{oc} = 28$) (estimated)
- 1,3-propanesultone : No potency of mobility to soil. ($K_{oc} = 16.8$) (QSAR)

12.5 Results of PBT and vPvB assessment : Not available**12.6 Other adverse effects : Not available**

Section XIII – DISPOSAL CONSIDERATION

13.1 Waste treatment methods



Product/Packaging disposal

- Consider the required attentions in accordance with waste treatment management regulation.

Waste codes / Waste designation according to LoW(2015) : 16-06-05

Waste treatment-relevant information

- Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Sewage disposal-relevant information: Not available

Other disposal recommendations: Not available

Section XIV – TRANSPORTATION INFORMATION

※ If those lithium-ion batteries are packed with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the latest edition of the IATA Dangerous Goods Regulations section II of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous). If those lithium-ion batteries are packed with or contained in an equipment, UN No. is UN3481.

14.1 UN Number : 3480

14.2 UN Proper shipping name : LITHIUM ION BATTERIES (including lithium ion polymer batteries)

14.3 Transport Hazard class : 9

14.4 Packing group : II

14.5 Special provisions : 188, 230, 384

14.6 Packing instructions : P903

14.7 Environmental hazards : No

14.8 Special precautions for user

in case of fire : F-A

in case of leakage : S-I

14.9 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not Available

14.10 IATA Transport : PI 965-Section IB

14.11 Package labels





Section XV – REGULATORY INFORMATION

※ This is a product that fulfills a certain function in solid state with specific shape without discharging any chemical substance in its use and has no obligation to write (M)SDS. Since this document contains the precautions for safe handling related to its materials or chemical substances consisting of this product, please note that these overall information is irrelevant to this product.

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

EU regulations

Authorisations and/or restrictions on use:

Authorisations: Not regulated

Restrictions on use: Not regulated

Other EU regulations:

Candidate List of substances of very high concern for Authorisation

- 1,3-propanesultone : Regulated

Foreign Regulatory Information

External information :

U.S.A management information (OSHA Regulation) : Not regulated

U.S.A management information (CERCLA Regulation) :

- Copper : 5,000 lb

- 1,3-propanesultone : 10 lb

U.S.A management information (EPCRA 302 Regulation) : Not regulated

U.S.A management information (EPCRA 304 Regulation) : Not regulated

U.S.A management information (EPCRA 313 Regulation) :

- Cobalt, Co : Regulated

- Aluminium (metal) : Regulated

- Copper : Regulated

- Aluminium Oxide : Regulated

- 1,3-propanesultone : Regulated

Substance of Roterdame Protocol : Not regulated

Substance of Stockholme Protocol :

- LiPF₆ (Lithium hexafluorophosphate) : Regulated

Substance of Montreal Protocol : Not regulated

15.2 Chemical safety assessment :

- No chemical safety assessment has been carried out for this product by the supplier.

Section XVI – OTHER INFORMATION EU

Product safety data sheet for PA0001N0006A/PA0001N0007A/PA001N0008A prepared in accordance with Regulation (EU) 2015/830 (REACH), Annex II, and OSHA 29 CFR 1910.1200



16.1 Indication of changes

Date Updated : 20 Dec 2021

Version : Rev. 00

16.2 Abbreviations and acronyms

ACGIH = American Conference of Government Industrial Hygienists

CLP = Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008

CAS No. = Chemical Abstracts Service number

DMEL = Derived Minimal Effect Levels

DNEL = Derived No Effect Level

EC Number = EINECS and ELINCS Number (see also EINECS and ELINCS)

EU = European Union

IARC = International Agency for Research on Cancer

ISHL = Industrial Safety & Health Law

NIOSH = National Institute for Occupational Safety & Health

NTP = National Toxicology Program

OSHA = European Agency for Safety and Health at work

PBT = Persistent, Bioaccumulative and Toxic substance

PNEC(s) = Predicted No Effect Concentration(s)

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 453/2010

STP = Sewage Treatment Plant

SVHC = Substances of Very High Concern

vPvB = Very Persistent and Very Bioaccumulative

UN = United Nations

MARPOL = International Convention for the Prevention of Pollution from Ships (IMO)

IBC = Intermediate Bulk Container

CERCLA = Comprehensive Environmental Response, Compensation & Liability Act (US)

EPCRA = Emergency Planning and Community Right-to-Know Act (US)

EINECS = European Inventory of Existing Commercial chemical Substances

ELINCS = European List of Notified Chemical Substances

16.3 Key literature reference and sources for data :

U.S. National library of Medicine (NLM) Hazardous Substances Data Bank (HSDB)

LookChem; <http://www.lookchem.com/>

IUCLID: <http://ecb.jrc.ec.europa.eu/IUCLID-DataSheets/7631905.pdf>

CHRIP (Chemical Risk Information Platform)

EPISUITE v4.11; <http://www.epa.gov/opt/exposure/pubs/episuitedi.html>

The Chemical Database - The Department of Chemistry at the University of Akron;

<http://ull.chemistry.uakron.edu/erd/>

ECOTOX: <http://cfpub.epa.gov/ecotox/>

International Chemical Safety Cards (ICSC): <http://www.nihs.go.jp/ICSC/>



National Chemical Information System (<http://ncis.nier.go.kr>)

Korea Dangerous Material Inventory Management System (<http://hazmat.nema.go.kr>)

REACH information on registered substances; <https://echa.europa.eu/information-on-chemicals/registered-substances>

EU CLP; <https://echa.europa.eu/information-on-chemicals/cl-inventory-database>

NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>

National Toxicology Program; <http://ntp.niehs.nih.gov/results/dbsearch/>

TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>

UN Recommendations on the transport of dangerous goods

American Conference of Governmental Industrial Hygienists TLVs and BEIs.

16.4 Classification and procedure used to derive the classification for mixtures according to Regulation(EC) 1272/2008(CLP) : Not classified

16.5 Relevant H-statements : Not applicable

16.6 Training advice :

- Do not handle until all safety precautions have been read and understood.

16.7 Further information :

Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge. This data does not constitute a uarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)"

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.

Safety DATA SHEET

FICHE DE DONNÉES SUR LA SÉCURITÉ

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

1.IDENTIFICATION DE LA SUBSTANCE/PRÉPARATION ET DE LA ENTREPRISE/ENTREPRISE

Product identifier

Identificateur de produit

Product Name

Nom du produit

Rechargeable Li-ion Battery

Model Name

Nom du modèle

Rechargeable Li-ion Battery

160633

Details of the supplier of the Safety data sheet

Détails du fournisseur de la fiche de données de sécurité

Supplier Name

Nom du fournisseur

Huizhou Everpower Technology Co., Ltd.

Supplier Address

Adresse du fournisseur

NO.2 Building, NO.55 District, Zhongkai Hi-Tech Zone, Huizhou City,
Guangdong Province, P.R.China**Supplier Phone Number**

Numéro de téléphone du fournisseur

Phone: +86-15919364704

Téléphone : +86-15919364704

Supplier Email

Courriel du fournisseur

qiu hf@htkjbattery.com

2. HAZARDS IDENTIFICATION

2.HAZARDS IDENTIFICATION

Classification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Ce produit chimique n'est pas considéré comme dangereux par la norme de communication des dangers de l'OSHA 2012 (29 CFR 1910.1200) Ce produit est un article qui est une batterie scellée et qui, à ce titre, ne nécessite pas de SMDPar selon la norme de communication sur les risques de l'OSHA, à moins d'être rompu. Les dangers indiqués sont pour une batterie rompue.

Skin corrosion/irritation Corrosion/irritation de la peau	Category 2 Catégorie 2
Serious eye damage/eye irritation Dommages oculaires graves/irritation oculaire	Category 2 Catégorie 2

GHS Label elements, including precautionary statements

Éléments de l'étiquette GHS, y compris les déclarations de précaution

Emergency Overview

Vue d'ensemble d'urgence

Signal word		Warning	
Mot de signal		Avertissement	
Hazard Statements			
Déclarations de dangers			
Cause skin irritation			
Causer une irritation de la peau			
Causes serious eye irritation			
Provoque une irritation oculaire grave			
			
This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist. Ce produit est un article qui contient une substance chimique. Des informations sur la sécurité sont données pour l'exposition à l'article tel qu'il a été vendu. L'utilisation prévue du produit ne devrait pas entraîner l'exposition à la substance chimique. C'est une batterie. En cas de rupture : les dangers ci-dessus existent.			
Appearance	Silvery	Physical State	Solid
Apparence	Argent argenté	État physique	Liquide solide contenant
Odor	Odorless	Odeur	Inodore

Precautionary Statements – Prevention

Déclarations de précaution - Prévention

Wash face, hands and any exposed skin thoroughly after handling

Lavez le visage, les mains et toute peau exposée à fond après la manipulation

Wear protective gloves/protective clothing/eye protection/face protection

Portez des gants de protection/vêtements de protection/protection oculaire/protection du visage

Wear eye/face protection

Portez une protection pour les yeux et le visage

Precautionary Statements – Response

Déclarations de précaution - Réponse

Specific treatment (see supplemental first aid instructions on this label)

Traitement spécifique (voir instructions de premiers soins supplémentaires sur cette étiquette)

Eyes

Yeux

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

SI EN YEUX: Rincer prudemment avec de l'eau pendant plusieurs minutes. Enlever les lentilles cornéennes, si elles sont présentes et faciles à faire. Continuer le rinçage

If eye irritation persists: Get medical advice/attention

Si l'irritation oculaire persiste : Obtenez des conseils médicaux/attention

Skin

Peau

IF ON SKIN: Wash with plenty of soap and water

SI SUR SKIN: Laver avec beaucoup de savon et d'eau

Take off contaminated clothing and wash before reuse

Enlever les vêtements contaminés et les laver avant de les réutiliser

If skin irritation or rash occurs: Get medical advice/attention

En cas d'irritation ou d'éruption cutanée : Obtenez des conseils médicaux/attention

Precautionary Statements – Storage

Déclarations de précaution - Stockage

Store locked up

Magasin verrouillé

Precautionary Statements – Disposal

Déclarations de précaution - Disposition

Dispose of contents/container to an approved waste disposal plant

Disposer du contenu/conteneur dans une usine d'élimination des déchets approuvée

Hazards not otherwise classified (HNOC)

Risques non classés autrement

Not applicable

Non applicable

Other information

Autres informations

Interactions with Other Chemicals

Interactions avec d'autres produits chimiques

No information available

Aucune information disponible

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.COMPOSITION/INFORMATION SUR INGREDIENTS

Chemical Name Nom chimique	CAS No. CAS Nombre	Weight % Poids%
Lithium Cobalt Oxide	12190-79-3	40
2, 4-Dinitrophenylhydrazine	119-26-6	6
Copper	7440-50-8	9
Aluminum	7429-90-5	5
Graphite	7782-42-5	18
Propylene carbonate	108-32-7	2
Ethylene carbonate	96-49-1	2
Dimethyl carbonate	616-38-6	3
Lithium hexafluorophosphate	21324-40-3	10
Polyvinylidene fluoride	24937-79-9	1
Polyethylene	9002-88-4	1
Aluminium Electrode	7429-90-5	1
Nickel	7440-02-0	2

4. FIRST AID MEASURES

4.MESURES DE PREMIERS SOINS

First aid measures

Mesures de premiers secours

General Advice

Conseils généraux

First aid is upon rupture of sealed battery. Show this Safety data sheet to the doctor in attendance

Les premiers soins sont sur la rupture de la batterie scellée. Montrez cette fiche de données sécurité au médecin présent

Eye Contact

Contact visuel

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area

Rincer immédiatement avec beaucoup d'eau, également sous les paupières, pendant au moins 15 minutes. Gardez les yeux grands ouverts tout en rinçant. Retirez les lentilles cornéennes, si elles sont présentes et faciles à faire. Continuer le rinçant. Obtenir des soins médicaux si l'irritation se développe et persiste. Ne frottez pas la zone touchée

Skin Contact

Contact peau

Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.
Laver immédiatement avec du savon et beaucoup d'eau pendant au moins 15 minutes. Dans le cas d'une irritation de la peau ou des réactions allergiques voir un médecin. Peut provoquer une réaction cutanée allergique.

Inhalation

Inhalation

Remove to fresh air. If symptoms persist, call a physician. Get medical attention immediately if symptoms occur.
Retirer à l'air frais. Si les symptômes persistent, appelez un médecin. Obtenez immédiatement des soins médicaux en cas de symptômes.

Ingestion

Ingestion

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

Ne pas induire des vomissements. Rincer la bouche immédiatement et boire beaucoup d'eau. Ne donnez jamais rien par la bouche à une personne inconsciente. Appelez un médecin.

Self-protection of the first aider

Autoprotection du secouriste

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8)
Évitez tout contact avec la peau, les yeux ou les vêtements. Utilisez de l'équipement de protection individuelle au besoin. Porter des vêtements de protection individuelle (voir la section 8)

Most important symptoms and effects, both acute and delayed

Les symptômes et effets les plus importants, aigus et retardés

Most Important Symptoms and Effects

Symptômes et effets les plus importants

Coughing and/ or wheezing. Itching.
Toux et/ou respiration sifflante. Démangeaisons.

Indication of any immediate medical attention and special treatment needed

Indication de toute attention médicale immédiate et traitement spécial nécessaire

Notes to Physician

Notes au médecin

Treat symptomatically
Traiter symptomatiquement

5. FIRE-FIGHTING MEASURES

5.MESURES DE LUTTE CONTRE L'INCENDIE

Suitable Extinguishing Media

Médias d'extinction appropriés

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Utiliser des mesures d'extinction adaptées aux circonstances locales et aux Environnement.

Unsuitable Extinguishing Media

Médias d'extinction inappropriés

CAUTION: Use of water spray when fighting fire may be inefficient

CAUTION: L'utilisation de pulvérisation d'eau lors de la lutte contre l'incendie peut être inefficace

Specific Hazards Arising from the Chemical

Risques spécifiques découlant de la

No information available.

Aucune information disponible.

Hazardous Combustion Products

Produits de combustion dangereux

Carbon Oxides

Oxydes de carbone

~~Protective equipment and precautions for firefighters~~

Équipement de protection et précautions pour les pompiers

As in any fire, wear self-contained breathing apparatus pressure-demand,MSHA/NIOSH (approved or equivalent) and full protective gear.

Comme dans tout incendie, porter un appareil respiratoire autonome à la demande de pression, MSHA/NIOSH (approuvé ou équivalent) et un équipement de protection complet.

6. ACCIDENTAL RELEASE MEASURES

6. MESURES DE LIBÉRATION ACCIDENTELLE

Personal precautions, protective equipment and emergency procedures

Personal Precautions

Précautions personnelles

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.

Évitez tout contact avec la peau, les yeux ou les vêtements. Assurer une ventilation adéquate. Utilisez de l'équipement de protection individuelle au besoin. Évacuer le personnel vers des zones sûres.

Other Information

Autres informations

Refer to protective measures listed in Sections 7 and 8

Se référer aux mesures de protection énumérées aux articles 7 et 8

Environmental Precautions

Précautions environnementales

Refer to protective measures listed in Sections 7 and 8.

Se référer aux mesures de protection énumérées aux articles 7 et 8

Methods for cleaning up

Méthodes de nettoyage

Pick up and transfer to properly labeled containers

Ramassage et transfert dans des contenants correctement étiquetés

Methods for Containment

Méthodes de confinement

Prevent further leakage or spillage if safe to do so.

Empêchez d'autres fuites ou déversements s'ils sont sécuritaires.

Methods for cleaning up

Méthodes de nettoyage

Pick up and transfer to properly labeled containers.

Ramassage et transfert dans des contenants correctement étiquetés.

7. HANDLING AND STORAGE

7. MANIPULATION ET STOCKAGE

Precautions for safe handling

Précautions pour une manipulation sécuritaire

Handling

Manipulation

In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing.

En cas de rupture. Utilisez de l'équipement de protection individuelle. Évitez tout contact avec la peau, les yeux ou les vêtements.

Conditions for safe storage, including any incompatibilities

Conditions d'entreposage sécuritaire, y compris les incompatibilités

Storage

Stockage

Keep containers tightly closed in a dry, cool and well-ventilated place.

Gardez les contenants bien fermés dans un endroit sec, frais et bien aéré.

Incompatible Products

Produits incompatibles

Strong acids. Strong oxidizing agents. Strong bases.

Des acides forts. Agents oxydants forts. Des bases solides.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8. CONTRÔLES D'EXPOSITION/PROTECTION PERSONNELLE

Control parameters

Paramètres de contrôle

Exposure Guidelines

Ligne directrice sur l'exposition

Chemical Name Nom chimique	ACGIH TLV ACGIH TLV	OSHA PEL ACGIH TLV	NIOSH IDLH ACGIH TLV
-------------------------------	------------------------	-----------------------	-------------------------

Graphite 7782-42-5	TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers	TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m ³ respirable dust natural (vacated) TWA: 10 mg/m ³ total dust synthetic (vacated) TWA: 5 mg/m ³ respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust
Copper 7440-50-8	TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m ³ F	TWA: 2.5 mg/m ³ F TWA: 2.5 mg/m ³ dust (vacated) TWA: 2.5 mg/m ³	
Lithium Cobalt Oxide (LiCoO ₂) 12190-79-3	TWA: 0.02 mg/m ³	-	-
Nickel 7440-02-0	TWA: 1.5 mg/m ³	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³
Aluminum 7429-90-5	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ Aluminum	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health
ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Limites d'exposition admissibles immédiatement dangereuses pour la vie ou la santé

Other Exposure Guidelines

Autres lignes directrices sur l'exposition

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters

Limites libérées révoquées par la décision de la Cour d'appel dans l'affaire AFL-CIO c. OSHA, 965 F.2d 962 (11e cir., 1992) Voir l'article 15 des paramètres nationaux de contrôle de l'exposition

Appropriate engineering controls

Contrôles techniques appropriés

Engineering Measures

Mesures techniques

Showers
Douches
Eyewash stations
Stations de lavage des yeux
Ventilation systems
Systèmes de ventilation

Individual protection measures, such as personal protective equipment

Mesures de protection individuelles, telles que l'équipement de protection individuelle

Eye/Face Protection

Protection œil/visage

If splashes are likely to occur: Wear Safety glasses with side shields (or goggles). None required for consumer use.

Si des éclaboussures sont susceptibles de se produire: Portez des lunettes de sécurité avec des boucliers latéraux (ou des lunettes). Aucun n'est requis pour l'usage du consommateur.

Skin and Body Protection

Protection de la peau et du corps

Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves

Portez des gants de protection et des vêtements de protection. Vêtements à manches longues. Gants imperméables

Respiratory Protection

Protection respiratoire

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Aucun équipement de protection n'est nécessaire dans des conditions d'utilisation normales. Si les limites d'exposition sont dépassées ou si l'irritation est ressentie, une ventilation et une évacuation peuvent être nécessaires.

Hygiene Measures

Mesures d'hygiène

Handle in accordance with good industrial hygiene and Safety practice.

Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.

Poignée conformément aux bonnes pratiques d'hygiène et de sécurité. Ne mangez pas, ne buvez pas ou ne fumez pas lorsque vous utilisez ce produit. Enlever les vêtements contaminés et les laver avant de les réutiliser. Évitez tout contact avec la peau, les yeux ou les vêtements. Portez des gants appropriés et une protection pour les yeux et le visage. Lavez-vous les mains avant de se briser et immédiatement après la manipulation du produit.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.PROPRIÉTÉS PHYSIQUES ET CHIMIQUES

Physical and Chemical Properties

Propriétés physiques et chimiques

Physical State	Solid		
État physique	solide		
Appearance	Silvery	Odor	Odorless
Apparence	Argent argenté et	Odeur	Inodore
Color	No information available	Odor Threshold	No information available
Couleur	Aucune information disponible	Seuil d'odeur	Aucune information disponible
Property	Values		Remarks/ Method
Propriété	Valeurs		Remarques/Méthode
Ph	No data available		None known
Ph	Aucune information disponible		Inconnu
Melting / freezing point	No data available		None known
Point de fusion / point de congélation	Aucune information disponible		Inconnu
Boiling point / boiling range	No data available		None known
Point d'ébullition / gamme d'ébullition	Aucune information disponible		Inconnu
Flash Point	No data available		None known
Point d'éclair	Aucune information disponible		Inconnu
Evaporation Rate	No data available		None known
Taux d'évaporation	Aucune information disponible		Inconnu
Flammability (solid, gas)	No data available		None known
Flammabilité (solide, gaz)	Aucune information disponible		Inconnu
Flammability Limit in Air			
Limite d'inflammabilité dans l'air			
Upper flammability limit	No data available		
Limite supérieure d'inflammabilité	Aucune information disponible		
Lower flammability limit	No data available		
Limite d'inflammabilité inférieure	Aucune information disponible		
Vapor pressure	No data available		None known
Pression de vapeur	Aucune information disponible		Inconnu

Vapor density Densité de vapeur	No data available Aucune information disponible	None known Inconnu
Specific Gravity Spécifique Gravité	No data available Aucune information disponible	None known Inconnu
Water Solubility Hydrosolubilité	No data available Aucune information disponible	None known Inconnu
Solubility in other solvents Solubilité dans d'autres solvants	No data available Aucune information disponible	None known Inconnu
Partition coefficient: n-octanol/water Coefficient de partition : n-octanol/eau	0.00001 0.00001	None known Inconnu
Autoignition temperature Température d'auto-allumage	No data available Aucune information disponible	None known Inconnu
Decomposition temperature Température de décomposition	No data available Aucune information disponible	None known Inconnu
Kinematic viscosity Viscosité cinématique	No data available Aucune information disponible	None known Inconnu
Dynamic viscosity Viscosité dynamique	0.00001 0.00001	None known Inconnu
Explosive properties Propriétés explosives	No data available Aucune information disponible	
Oxidizing Properties Propriétés oxydantes	No data available Aucune information disponible	
Other Information Autres informations		
Softening Point Point d'adoucissement	No data available Aucune information disponible	
VOC Content (%) Contenu DE COV (%)	No data available Aucune information disponible	
Particle Size Taille des particules	No data available Aucune information disponible	

10. STABILITY AND REACTIVITY

10.STABILITÉ ET RÉACTIVITÉ

Reactivity

Réactivité

No data available

Aucune donnée disponible

Chemical stability

Stabilité chimique

Stable under recommended storage conditions.

Stable dans les conditions d'entreposage recommandées.

Possibility of Hazardous Reactions

Possibilité de réactions dangereuses

None under normal processing.

Aucun dans le cadre d'un traitement normal.

Hazardous Polymerization

Polymérisation dangereuse

Hazardous polymerization does not occur.

La polymérisation dangereuse ne se produit pas.

Conditions to avoid

Conditions à éviter

None known based on information supplied.

inconnu s'appuyant sur les informations fournies.

Incompatible materials

Matériaux incompatibles

Strong acids. Strong oxidizing agents. Strong bases.

Des acides forts. Agents oxydants forts. Des bases solides.

Hazardous Decomposition Products

Produits de décomposition dangereux

Carbon oxides.

Des oxydes de carbone.

11. TOXICOLOGICAL INFORMATION

11.INFORMATIONS TOXICOLOGIQUES

Information on likely routes of exposure

Product Information

Informations sur les produits

Product does not present an acute toxicity hazard based on known or supplied information In case of rupture

Le produit ne présente pas de risque de toxicité aigu fondé sur des informations connues ou fournies en cas de rupture

Inhalation

Inhalation

Specific test data for the substance or mixture is not available.

Corrosive by inhalation.(based on components).

Les données d'essai spécifiques pour la substance ou le mélange ne sont pas disponibles. Corrosif par inhalation. (basé sur des composants).

Eye Contact

Contact visuel

Specific test data for the substance or mixture is not available.

Expected to be and irritant based on components. Irritating to eyes.

May cause redness, itching, and pain. May cause temporary eye irritation.

Les données d'essai spécifiques pour la substance ou le mélange ne sont pas disponibles. Prévu pour être et irritant basé sur les composants. Irritant pour les yeux. Peut causer des rougeurs, des démangeaisons et de la douleur. Peut causer une irritation temporaire des yeux.

Skin Contact

Contact peau

Specific test data for the substance or mixture is not available.

Expected to be an irritant based on components. Irritating to skin.

Prolonged contact may cause redness and irritation.

Les données d'essai spécifiques pour la substance ou le mélange ne sont pas disponibles. On s'attend à être un irritant basé sur des composants. Irritant pour la peau. Un contact prolongé peut causer des rougeurs et de l'irritation.

Ingestion

Ingestion

Specific test data for the substance or mixture is not available.

Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Les données d'essai spécifiques pour la substance ou le mélange ne sont pas disponibles. L'ingestion peut causer une irritation des muqueuses. L'ingestion peut causer une irritation gastro-intestinale, des nausées, des vomissements et de la diarrhée.

Component Information

Informations sur les composants

Chemical Name Nom chimique	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000 mg/kg (Rat)	-	-
Nickel 7440-02-0	> 9000 mg/kg (Rat)	-	-

Information on toxicological effects

Informations sur les effets toxicologiques

Symptoms

Symptômes

Erythema (skin redness). May cause redness and tearing of the eyes.

Coughing and/ or wheezing.Itching.

Érythème (rougeur de peau). Peut causer des rougeurs et des déchirures des yeux. Toux et/ou respiration sifflante. Démangeaisons.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Effets retardés et immédiats ainsi que effets chroniques de l'exposition à court et à long terme

Sensitization

May cause sensitization of susceptible persons. May cause sensitization by skin contact.

Sensibilisation

Peut provoquer la sensibilisation des personnes sensibles. Peut provoquer une sensibilisation par contact cutané.

Mutagenic Effects

Effets mutagènes

No information available

Aucune information disponible

Carcinogenicity

Cancérogénicité

The table below indicates whether each agency has listed any ingredient as a carcinogen

Le tableau ci-dessous indique si chaque organisme a inscrit un ingrédient comme cancérogène

Chemical Name Nom chimique	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (LiCoO ₂) 12190-79-3	A3	Group 2B	-	X
Nickel 7440-02-0	-	Group 1 Group 2B	Reasonably Anticipated	X

12. ECOLOGICAL INFORMATION

12.INFORMATIONS ÉCOLOGIQUES

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name Nom chimique	Toxicity to Algae Toxicité pour les algues	Toxicity to Fish Toxicité pour les poissons	Toxicity to Microorganisms Toxicité pour les micro-organismes	Daphnia Magna (Water Flea) Daphnia Magna (Puce d'eau)
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)	-	48h EC50: = 0.03 mg/L
Nickel 7440-02-0	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: 1.3 mg/L (Cyprinus carpio) 96h LC50: 10.4mg/L (Cyprinus carpio)	-	48h EC50: > 100 mg/L 48h EC50: 1 mg/L

Persistence and Degradability

Persistence et dégradabilité

No information available.

Aucune information disponible.

Bioaccumulation

Bioaccumulation

No information available

Aucune information disponible.

Other adverse effects

Autres effets indésirables

No information available.

Aucune information disponible.

13. DISPOSAL CONSIDERATIONS

13. CONSIDÉRATIONS D'ÉLIMINATION

Waste treatment methods

Méthodes de traitement des déchets

Disposal methods

Méthodes d'élimination

Should not be released into the environment.

Ne doit pas être libéré dans l'environnement.

Contaminated Packaging

Emballage contaminé

Dispose of in accordance with federal, state and local regulations.

Disposer conformément aux réglementations fédérales, étatiques et locales.

California Hazardous Waste Codes 141

Codes de déchets dangereux de la Californie 141

Chemical Name Nom chimique	California Hazardous Waste Déchets dangereux de la Californie
Copper 7440-50-8	Toxic Toxiques
Lithium Cobalt Oxide (LiCoO ₂) 12190-79-3	Toxic Toxiques
Nickel 7440-02-0	Toxic powder Toxiques poudre
Aluminum 7429-90-5	Ignitable powder Inflammables Poudre

14. TRANSPORT INFORMATION

14.INFORMATIONS SUR LES TRANSPORTS

Note:
Note

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

Le transport des cellules et batteries primaires au lithium est réglementé par l'Organisation de l'aviation civile internationale, l'Association internationale du transport aérien, l'International Maritime Dangerous Goods Code et le département des Transports des États-Unis. Les batteries doivent répondre aux critères d'expédition suivants : 1. Les expéditions aériennes doivent satisfaire aux exigences indiquées dans la disposition spéciale A45 du Règlement sur les marchandises dangereuses de l'Association internationale du transport aérien. 2. Répondre aux exigences du département des Transports des États-Unis inscrits au 49 CFR 173.185. 3. Le transport de batteries au lithium primaires est interdit à bord des avions de passagers. Se référer au Registre fédéral le 15 décembre 2004 (Matières dangereuses; Interdiction de transport de batteries et de cellules de lithium primaires à bord d'aéronefs de passagers; Règle finale) Les batteries au lithium expédiées sous le titre de « batteries au lithium », « batteries au lithium emballées avec de l'équipement » ou « batteries au lithium contenues dans l'équipement » ne peuvent pas être classées comme « marchandises dangereuses » lorsqu'elles sont expédiées conformément à la « provision spéciale A45 de l'IATA-DGR » " ou "disposition spéciale 188 du code IMO-IMDG"

DOT

Proper Shipping Name
Nom d'expédition approprié
Hazard Class
Catégorie de danger

NOT REGULATED
NON RÉGLEMENTÉ
NOT REGULATED
NON RÉGLEMENTÉ
N/A
N/A

TDG

Not regulated
NON RÉGLEMENTÉ

MEX

Not regulated
NON RÉGLEMENTÉ

ICAO

Not regulated
NON RÉGLEMENTÉ

IATA**Proper Shipping Name**

Nom d'expédition approprié

Hazard Class

Catégorie de danger

IMDG/IMO**Proper Shipping Name**

Nom d'expédition approprié

Hazard Class

Catégorie de danger

EmS No.**RID****ADR****AND**

Not regulated

NON RÉGLEMENTÉ

Not regulated

NON RÉGLEMENTÉ

N/A

N/A

Not regulated

NON RÉGLEMENTÉ

NON-REGULATED PER SP 188

N/A

F-A, S-I

Not regulated

NON RÉGLEMENTÉ

Not regulated

NON RÉGLEMENTÉ

Not regulated

NON RÉGLEMENTÉ

15. REGULATORY INFORMATION**15. INFORMATIONS RÉGLEMENTAIRES****International Inventories**

Inventaires internationaux

TSCA

Complies

Conforme

DSL

All components are listed either on the DSL or NDSL.

Tous les composants sont répertoriés soit sur le DSL ou NDSL

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory**TSCA** -United States Toxic Substances Control Act Section 8(b) Inventaire**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List Liste des substances domestiques**DSL/NDSL** - Canadiennes/Liste des substances non domestiques**US Federal Regulations**

Règlement fédéral des États-Unis

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

L'article 313 du Titre III de la Superfund Amendments and Reauthorization Act of 1986 (SARA). Ce produit contient un produit chimique ou chimique qui est assujéti aux exigences de déclaration de la Loi et du titre 40 du Code de réglementation fédérale, Partie 372

Chemical Name Nom chimique	CAS No CAS Nombre	Weight-% Poids-%	SARA 313 - Threshold Values % SARA 313 - Seuil Valeurs%
Copper	7440-50-8	9%	1.0%
Lithium Cobalt Oxide (LiCoO ₂)	12190-79-3	40%	0.1%
Nickel	7440-02-0	2%	0.1%
Aluminum	7429-90-5	5%	1.0%

SARA 311/312 Hazard Categories

SARA 311/312 Catégories de dangers

Acute Health Hazard

Risque aigu pour la santé

No

non

Chronic Health Hazard

Risque chronique pour la santé

No

non

Fire Hazard

Incendie Risque

No

non

Sudden release of pressure hazard

Libération soudaine du risque de pression

No

non

Reactive Hazard

Risque réactif

No

non

CWA (Clean Water Act)**CWA (Loi sur l'eau propre)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Ce produit contient les substances suivantes qui sont des polluants réglementés en vertu de la Loi sur l'eau propre (40 CFR 122,21 et 40 CFR 122,42)

Chemical Name Nom chimique	CWA - Reportable Quantities CWA -Rapportables Quantités	CWA - Toxic Pollutants CWA - Toxiques Polluants	CWA - Priority Pollutants CWA - Priorité Polluants	CWA - Hazardous Substances CWA - Dangereux Substances
Copper 7440-50-8	-	X	X	-
Nickel 7440-02-0	-	X	X	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Ce matériel, tel qu'il est fourni, contient une ou plusieurs substances réglementées comme substance dangereuse en vertu de la Loi sur l'indemnisation et la responsabilité en matière d'indemnisation et de responsabilité environnementales globales (CERCLA) (40 CFR 302)

Chemical Name Nom chimique	Hazardous Substances RQs Substances dangereuses RQs	Extremely Hazardous Substances RQs Extrêmement dangereux Substances RQs	RQ
Copper 7440-50-8	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Nickel 7440-02-0	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

Règlement des États-Unis

California Proposition 65

Proposition de la Californie 65

This product contains the following Proposition 65 chemicals.

Ce produit contient les produits chimiques suivants de la Proposition 65.

Chemical Name	California Proposition 65
Nickel - 7440-02-0	Carcinogen

U.S. State Right-to-Know Regulations

Règlement sur le droit de savoir des États-Unis

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Graphite 7782-42-5	X	X	X	-	-
Ethylene carbonate 96-49-1	-	X	X	-	-
Dimethyl carbonate 616-38-6	X	X	X	-	-
Copper 7440-50-8	X	X	X	X	X
Lithium Cobalt Oxide (LiCoO ₂) 12190-79-3	X	-	X	X	X
Nickel 7440-02-0	X	X	X	X	X
Aluminum 7429-90-5	X	X	X	X	-

International Regulations

Règlement international

Mexico**National occupational exposure limits**

Limites nationales d'exposition professionnelle

Component Composant	Carcinogen Status Statut cancérigène	Exposure Limits Limites d'exposition
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Graphite 7782-42-5 (18%)	-	Mexico: TWA= 2 mg/m ³
Copper 7440-50-8 (9%)	-	Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³
Nickel 7440-02-0 (2%)	-	Mexico: TWA 1 mg/m ³
Aluminum 7429-90-5 (5%)	-	Mexico: TWA= 10 mg/m ³

Mexico - Occupational Exposure Limits – Carcinogens

Mexico - Limites d'exposition professionnelle - Cancérogène

Canada
WHMIS Hazard Class
Classe DE danger WHMIS
Non-controlled
Non contrôlé

16. OTHER INFORMATION

16.AUTRES INFORMATIONS

Prepared By

Préparé par

Huizhou Everpower Technology Co., Ltd.

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Date de révision

29-JAN-2024

Revision Note

Note de révision

No information available

Aucune information disponible

End of Safety Data Sheet

Feuille de données de fin de sécurité