SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **RECHARGEABLE LI-ION BATTERY ZXAA (1.5V/3.7V 2400MAH/880MAH 3.0WH)**

Synonyms RECHARGEABLE LI-ION BATTERY ZXAA

1.2 Uses and uses advised against

Uses LITHIUM ION BATTERY ● RECHARGEABLE BATTERY

1.3 Details of the supplier of the product

Supplier name **WHITE INTERNATIONAL NZ LIMITED**

Address 15G Kerwyn Ave, East Tamaki, AUCKLAND, 2013, NEW ZEALAND

Telephone 0800 509 506

Email sales@whiteint.co.nz

1.4 Emergency telephone numbers

Emergency +64 21 143 2359

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NON HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The Lithium batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Exposure may occur as a result of external environmental conditions or in cases of abuse (mechanical, thermal, electrical) which lead to the activation of safety pressure relief valve(s) and/or cause a rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances. The mixture inside the article has the following hazardous characteristics:

May cause an allergic skin reaction.
Suspected of causing cancer.
May damage fertility.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

NEW ZEALAND: Batteries are considered to be manufactured articles and are not, therefore, covered by the HSNO Act. Although they may contain hazardous substances, the item has an end use function wholly dependent on its shape and design, which does not involve the intentional release of any hazardous component. Also, the primary function of the article does not lead to any (HSNO) hazardous effect. Hazards arising during transport will still be controlled, as the local transport legislation picks up the international requirements. Disposal issues will be covered by the MfE hazardous waste programme and local authority requirements.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
COBALT LITHIUM DIOXIDE	12190-79-3	235-362-0	32%

GRAPHITE	7782-42-5	231-955-3	26%
COPPER	7440-50-8	231-159-6	9%
ALUMINIUM POWDER (STABILISED)	7429-90-5	231-072-3	7%
NICKEL	7440-02-0	231-111-4	3%
POLYVINYL CHLORIDE (PVC)	9002-86-2	618-338-8	3%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye Exposure is considered unlikely unless casing is damaged. Flush gently with running water. Seek medical attention if irritation develops.

Inhalation Exposure is considered unlikely. Due to product form / nature of use, an inhalation hazard is not anticipated.

Skin Exposure is considered unlikely unless casing is damaged. Gently flush affected areas with water. Seek medical attention if irritation develops.

Ingestion For advice, contact the National Poisons Centre on 0800 764 766 (0800 POISON) or +643 479 7248 or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product during normal use. However, exposure to battery contents may cause irritation and potential burns.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Dry agent. Do NOT use water. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture

Contents react with water. May explode if exposed to high temperatures due to pressure build up in battery casing. Lithium may burn in a fire situation and may be ejected from the battery. Damaged cells may evolve toxic and flammable vapours.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

2Y

2 Fine Water Spray.

Y Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

If spilt, collect and reuse where possible. If battery is broken or damaged, absorb liquid with sand or similar. Contain spillage, then collect and place in suitable containers for disposal. CAUTION: Avoid exposure to contents. Eliminate all sources of ignition.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly sealed in a cool, dry, well ventilated area, removed from water, incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Store between 15°C and 25°C.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Aluminium metal and insoluble aluminium compounds (including pyro powder, aluminium oxide, and aluminium welding fumes), as Al	WES [NZ]	--	1	--	--
Copper and its inorganic compounds, as Cu	WES [NZ]	--	0.01	--	--
Copper and its inorganic compounds, as Cu	WES [Proposed]	--	0.01	--	--
Graphite, all forms except graphite fibres	WES [NZ]	--	3	--	--
Nickel, elemental or metallic	WES [NZ]	--	0.005	--	--
Nickel, inorganic compounds	WES [NZ]	--	0.05	--	--
Nickel, inorganic compounds (respirable dust)	WES [NZ]	--	0.005	--	--

Biological limits

Ingredient	Determinant	Sampling Time	BEI
COBALT LITHIUM DIOXIDE	Cobalt in urine	End of shift at end of workweek	15 µg/L

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear safety goggles if handling a ruptured or leaking battery cell.
Hands	Wear neoprene or nitrile gloves if handling a ruptured or leaking battery cell.
Body	Not required under normal conditions of use.
Respiratory	In case of battery or cell rupture, use a self-contained full face respiratory mask.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	SOLID (BATTERY)
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE

9.1 Information on basic physical and chemical properties

Vapour density	NOT AVAILABLE
Relative density	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

No information provided.

10.5 Incompatible materials

Battery contents are incompatible with water (evolving flammable gas), oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Batteries consist of a hermetically sealed metallic container containing a number of chemicals and materials of construction that may be hazardous upon release. Over exposure considered unlikely unless battery ruptures and contact with contents occurs. Contents may be harmful.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
COPPER	--	> 2000 mg/kg (rat)	--
NICKEL	> 9000 mg/kg (Sprague-Dawley rat)	--	--

Skin Battery contents may be corrosive and cause irritation, redness, dermatitis and possible skin burns. Exposure is considered unlikely unless the battery ruptures.

Eye Battery contents may be corrosive and cause irritation, redness and possible eye burns. Exposure is considered unlikely unless the battery ruptures.

Sensitisation Exposure to contents may cause skin sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity Due to the product encapsulation, exposure to contents is not anticipated with normal use. However, the battery contains contents which may be carcinogenic.

Reproductive Exposure to contents containing cobalt may damage fertility or the unborn child.

STOT - single exposure Not classified as causing organ damage from single exposure. Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery ruptures. Exposure to contents may cause respiratory irritation.

STOT - repeated Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery

exposure ruptures. Some battery contents have the potential to cause damage through repeated exposure, however such exposure is considered unlikely.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

This product is not readily biodegradable.

12.3 Bioaccumulative potential

Limited information was available at the time of this review.

12.4 Mobility in soil

This product has low mobility in soil.

12.5 Other adverse effects

Avoid contamination of drains and waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse or recycle where possible. Return to manufacturer/supplier. Contact your state EPA or the manufacturer for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005, IMDG AND IATA





	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	3480	3480	3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
14.3 Transport hazard class	9A	9A	9A
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

Marine Pollutant.

14.6 Special precautions for user

Hazchem code 2Y

EmS F-A, S-I

Other information The environmentally hazardous substance mark is not required when transported in packages of less than 5 kg/L (UN Model Regulations: Special Provision 375; IATA: Special Provision A197; IMDG: Special Provision 969). Cells and batteries offered for transport are not subject to the provisions of the Australian Dangerous Goods code if they meet the criteria of UN Special Provision 188 (SP 188). UN number 3481 applies for LITHIUM BATTERIES CONTAINED IN EQUIPMENT or LITHIUM BATTERIES PACKED WITH EQUIPMENT which may also apply to this product.

15. REGULATORY INFORMATION

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

Approval code MANUFACTURED ARTICLE

Group standard Something for which its intended use is primarily to do with its physical shape, rather than its chemical composition.

Inventory listings

AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)
All components are listed on AIIC, or are exempt.
NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)
All components are listed on the NZIoC inventory, or are exempt.
UNITED STATES: TSCA (US Toxic Substances Control Act)
All components are listed on the TSCA inventory, or are exempt.

16. OTHER INFORMATION

Additional information

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

WORKPLACE CONTROLS AND PRACTICES: Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **RECHARGEABLE LI-ION BATTERY ZXAAA (1.5V/3.6V 750MAH/260MAH 0.94WH)**

Synonyms RECHARGEABLE LI-ION BATTERY ZXAAA

1.2 Uses and uses advised against

Uses LITHIUM ION BATTERY ● RECHARGEABLE BATTERY

1.3 Details of the supplier of the product

Supplier name **WHITE INTERNATIONAL NZ LIMITED**

Address 15G Kerwyn Ave, East Tamaki, AUCKLAND, 2013, NEW ZEALAND

Telephone 0800 509 506

Email sales@whiteint.co.nz

1.4 Emergency telephone numbers

Emergency +64 21 143 2359

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NON HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The Lithium batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Exposure may occur as a result of external environmental conditions or in cases of abuse (mechanical, thermal, electrical) which lead to the activation of safety pressure relief valve(s) and/or cause a rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances. The mixture inside the article has the following hazardous characteristics:
Fatal if inhaled
May cause cancer by inhalation
Causes damage to organs through prolonged or repeated exposure
Harmful to aquatic life with long lasting effects
Contains nickel. May produce an allergic reaction

NEW ZEALAND: Batteries are considered to be manufactured articles and are not, therefore, covered by the HSNO Act. Although they may contain hazardous substances, the item has an end use function wholly dependent on its shape and design, which does not involve the intentional release of any hazardous component. Also, the primary function of the article does not lead to any (HSNO) hazardous effect. Hazards arising during transport will still be controlled, as the local transport legislation picks up the international requirements. Disposal issues will be covered by the MfE hazardous waste programme and local authority requirements.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
COBALT LITHIUM MANGANESE NICKEL OXIDE	182442-95-1	695-690-9	<39%
GRAPHITE	7782-42-5	231-955-3	<26%
COPPER	7440-50-8	231-159-6	<10%

ALUMINIUM POWDER (STABILISED)	7429-90-5	231-072-3	<8%
NICKEL	7440-02-0	231-111-4	0.5%
POLYVINYL CHLORIDE (PVC)	9002-86-2	618-338-8	<1.3%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye Exposure is considered unlikely unless casing is damaged. Flush gently with running water. Seek medical attention if irritation develops.

Inhalation Exposure is considered unlikely. Due to product form / nature of use, an inhalation hazard is not anticipated.

Skin Exposure is considered unlikely unless casing is damaged. Gently flush affected areas with water. Seek medical attention if irritation develops.

Ingestion For advice, contact the National Poisons Centre on 0800 764 766 (0800 POISON) or +643 479 7248 or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product during normal use. However, exposure to battery contents may cause irritation and potential burns.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Dry agent. Do NOT use water. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture

Contents react with water. May explode if exposed to high temperatures due to pressure build up in battery casing. Lithium may burn in a fire situation and may be ejected from the battery. Damaged cells may evolve toxic and flammable vapours.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

2Y

2 Fine Water Spray.

Y Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

If spilt, collect and reuse where possible. If battery is broken or damaged, absorb liquid with sand or similar. Contain spillage, then collect and place in suitable containers for disposal. CAUTION: Avoid exposure to contents. Eliminate all sources of ignition.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly sealed in a cool, dry, well ventilated area, removed from water, incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Store between 15°C and 25°C.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Aluminium metal and insoluble aluminium compounds (including pyro powder, aluminium oxide, and aluminium welding fumes), as Al	WES [NZ]	--	1	--	--
Copper and its inorganic compounds, as Cu	WES [NZ]	--	0.01	--	--
Copper and its inorganic compounds, as Cu	WES [Proposed]	--	0.01	--	--
Graphite, all forms except graphite fibres	WES [NZ]	--	3	--	--
Nickel, elemental or metallic	WES [NZ]	--	0.005	--	--
Nickel, inorganic compounds	WES [NZ]	--	0.05	--	--
Nickel, inorganic compounds (respirable dust)	WES [NZ]	--	0.005	--	--

Biological limits

Ingredient	Determinant	Sampling Time	BEI
COBALT LITHIUM MANGANESE NICKEL OXIDE	Cobalt in urine	End of shift at end of workweek	15 µg/L

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear safety goggles if handling a ruptured or leaking battery cell.
Hands	Wear neoprene or nitrile gloves if handling a ruptured or leaking battery cell.
Body	Not required under normal conditions of use.
Respiratory	In case of battery or cell rupture, use a self-contained full face respiratory mask.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	SOLID (BATTERY)
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE

9.1 Information on basic physical and chemical properties

Vapour density	NOT AVAILABLE
Relative density	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

No information provided.

10.5 Incompatible materials

Battery contents are incompatible with water (evolving flammable gas), oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Batteries consist of a hermetically sealed metallic container containing a number of chemicals and materials of construction that may be hazardous upon release. Over exposure considered unlikely unless battery ruptures and contact with contents occurs. Contents are fatal if inhaled.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
COPPER	--	> 2000 mg/kg (rat)	--
NICKEL	> 9000 mg/kg (Sprague-Dawley rat)	--	--

Skin Battery contents may be corrosive and cause irritation, redness, dermatitis and possible skin burns. Exposure is considered unlikely unless the battery ruptures.

Eye Battery contents may be corrosive and cause irritation, redness and possible eye burns. Exposure is considered unlikely unless the battery ruptures.

Sensitisation Exposure to contents may cause skin sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity Due to the product encapsulation, exposure to contents is not anticipated with normal use. However, the battery contains contents which may be carcinogenic.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Not classified as causing organ damage from single exposure. Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery ruptures. Exposure to contents may cause respiratory irritation.

STOT - repeated Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery

exposure ruptures. Some battery contents have the potential to cause damage through repeated exposure, however such exposure is considered unlikely.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability
This product is not readily biodegradable.

12.3 Bioaccumulative potential
Limited information was available at the time of this review.

12.4 Mobility in soil
This product has low mobility in soil.

12.5 Other adverse effects
Avoid contamination of drains and waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal Reuse or recycle where possible. Return to manufacturer/supplier. Contact your state EPA or the manufacturer for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005, IMDG AND IATA



	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	3480	3480	3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
14.3 Transport hazard class	9A	9A	9A
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards
Not a Marine Pollutant.

14.6 Special precautions for user
Hazchem code 2Y

EmS F-A, S-I

Other information Cells and batteries offered for transport are not subject to the provisions of the Australian Dangerous Goods code if they meet the criteria of UN Special Provision 188 (SP 188). UN number 3481 applies for LITHIUM BATTERIES CONTAINED IN EQUIPMENT or LITHIUM BATTERIES PACKED WITH EQUIPMENT which may also apply to this product.

15. REGULATORY INFORMATION

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

Approval code MANUFACTURED ARTICLE

Group standard Something for which its intended use is primarily to do with its physical shape, rather than its chemical composition.

Inventory listings

AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)
Some components are listed on AIIC, or are exempt.
NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)
All components are listed on the NZIoC inventory, or are exempt.

16. OTHER INFORMATION

Additional information

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

WORKPLACE CONTROLS AND PRACTICES: Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

ZXCR123A Lithium-ion battery

SECTION 1: Identification

Product Identifier

Product Name: ZXCR123A Lithium-ion battery

Recommended Use of the Product and Restriction on Use

Relevant Identified Uses: Battery
Uses Advised Against: Any use other than recommended above.
Reasons Why Uses Advised Against: Not determined or not applicable.

Manufacturer or Supplier Details

Manufacturer:
United States
COAST
8033 NE Holman
Portland, OREGON 97218
1-800-426-5858
consumer.help@coastportland.com
www.coastportland.com

Emergency Telephone Number:

United States
COAST
1-800-426-5858 (8am - 5pm PST)

SECTION 2: Hazard(s) Identification

GHS Classification:

Acute toxicity (oral), category 4
Skin irritation, category 2
Eye irritation, category 2A
Specific target organ toxicity - single exposure, category 3, respiratory tract irritation

Label elements

Hazard Pictograms:



Signal Word: Warning

Hazard statements:

H319 Causes serious eye irritation
H302 Harmful if swallowed
H315 Causes skin irritation
H335 May cause respiratory irritation

Precautionary Statements:

P264 Wash skin and clothing thoroughly after handling

P280 Wear protective gloves, protective clothing, eye protection and face protection.
P270 Do not eat, drink or smoke when using this product
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P271 Use only outdoors or in a well-ventilated area
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 Rinse mouth
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 Specific treatment (see additional emergency instructions)
P337+P313 If eye irritation persists: Get medical attention / advice
P302+P352 IF ON SKIN: Wash with plenty of water
P362 Take off contaminated clothing and wash it before reuse
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 Call a POISON CENTER if you feel unwell
P333+P313 If skin irritation or rash occurs: Get medical advice/attention
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P405 Store locked up
P501 Dispose of contents to approved waste treatment plant

Hazards Not Otherwise Classified: None

SECTION 3: Composition/Information on Ingredients

Identification	Name	Weight %
CAS Number: 182442-95-1	Cobalt lithium manganese nickel oxide	<39.6
CAS Number: 7429-90-5	Aluminum	<5.56
CAS Number: 24937-79-9	Polyvinylidene fluoride	<1.15
CAS Number: 7782-42-5	Graphite	<23.2
CAS Number: 7440-50-8	Copper (massive)	<9.8
CAS Number: 61789-96-6	Rubber, butadiene-styrene	<1.78
CAS Number: 96-49-1	Ethylene carbonate	<2.72
CAS Number: 9003-07-0	Polypropylene	<0.78
CAS Number: 21324-40-3	Lithium hexafluorophosphate(1-)	<15.35

Additional Information:

None

SECTION 4: First Aid Measures

Description of First Aid Measures

General Notes:

No special measures required.

After Inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If symptoms develop or persist, seek medical advice/attention.

After Skin Contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After Eye Contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water (shower) for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After Swallowing:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Most Important Symptoms and Effects, Both Acute and Delayed

Acute Symptoms and Effects:

Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.

Acute oral exposure may lead to dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Adverse effects are dependent on exposure (dose, concentration, contact time).

Skin contact may result in redness, pain, burning and inflammation.

Inhalation may have adverse effects on the respiratory tract. Symptoms may include cough, breathing difficulties, sore throat and inflammation of the mucous membrane lining the respiratory tract.

Delayed Symptoms and Effects:

Symptoms of exposure may be delayed.

Immediate Medical Attention and Special Treatment

Specific Treatment:

Not determined or not applicable.

Notes for the Doctor:

Treat symptomatically.

SECTION 5: Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable Extinguishing Media:

Do not use water jet.

Specific Hazards During Fire-Fighting:

Thermal decomposition may produce irritating/toxic fumes/gases.

Special Protective Equipment for Firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

Methods and Material for Containment and Cleaning Up:

Harmful if swallowed. Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Reference to Other Sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and Storage

Precautions for Safe Handling:

Do not short circuit, crush, incinerate or disassemble the battery. Do not expose to heat or fire. Do not expose to extreme heat, open flames, hot surfaces or sources of ignition. Do not use or charge damaged, defective or deformed batteries. Safe handling for exposure to internal material due to a leak, spill or break: Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing mist/vapor/spray/dust. Use only with adequate ventilation. Keep away from sources of ignition. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (see Section 10). Keep containers tightly closed when not in use. Conditions for Safe Storage, Including Any Incompatibilities.

Conditions for Safe Storage, Including Any Incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

SECTION 8: Exposure Controls/Personal Protection

Only those substances with limit values have been included below.

Occupational Exposure Limit Values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
OSHA	Copper (massive)	7440-50-8	8-Hour TWA-PEL: 1 mg/m³ (dust and mist)
	Copper (massive)	7440-50-8	8-Hour TWA-PEL: 0.1 mg/m³ (fume)
	Aluminum	7429-90-5	8-Hour TWA-PEL: 15 mg/m³ (Total dust)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Aluminum	7429-90-5	8-Hour TWA-PEL: 5 mg/m³ (Respirable fraction)
	Graphite	7782-42-5	8-Hour TWA-PEL: 5 mg/m³ ([15 mppcf] natural graphite, inhalable fraction)
	Graphite	7782-42-5	8-Hour TWA-PEL: 15 mg/m³ (synthetic graphite, total dust)
	Graphite	7782-42-5	8-Hour TWA-PEL: 5 mg/m³ (synthetic graphite, respirable fraction)
	Lithium hexafluorophosphate(1-)	21324-40-3	8-Hour TWA-PEL: 2.5 mg/m³ (Fluorides, as F)
	Cobalt lithium manganese nickel oxide	182442-95-1	Ceiling Limit: 5 mg/m³ (as Manganese compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	PEL: 5 mg/m³ (as Manganese compounds)
	Polyvinylidene fluoride	24937-79-9	8-Hour TWA-PEL: 15 mg/m³ (Total Dust, Particulates not otherwise regulated)
	Polyvinylidene fluoride	24937-79-9	8-Hour TWA-PEL: 5 mg/m³ (Respirable fraction, Particulates not otherwise regulated)
	Polypropylene	9003-07-0	8-Hour TWA-PEL: 15 mg/m³ (Total Dust, Particulates not otherwise regulated)
	Polypropylene	9003-07-0	8-Hour TWA-PEL: 5 mg/m³ (Respirable fraction, Particulates not otherwise regulated)
NIOSH	Copper (massive)	7440-50-8	REL-TWA: 1 mg/m³ ([up to 10 hr] dust and mist)
	Copper (massive)	7440-50-8	IDLH: 100 mg/m³
	Copper (massive)	7440-50-8	REL-TWA: 0.1 mg/m³ (fume)
	Aluminum	7429-90-5	REL-TWA: 10 mg/m³ (Total dust [up to 10 hr])
	Aluminum	7429-90-5	REL-TWA: 5 mg/m³ (Respirable fraction [up to 10 hr])
	Graphite	7782-42-5	REL-TWA: 2.5 mg/m³ ([up to 10 hr] natural graphite, respirable)
	Graphite	7782-42-5	IDLH: 1250 mg/m³ (natural graphite)
	Lithium hexafluorophosphate(1-)	21324-40-3	REL-TWA: 2.5 mg/m³ (Fluorides, solid, inorganic, as F [up to 10 hr])
	Lithium hexafluorophosphate(1-)	21324-40-3	IDLH: 250 mg/m³ (Fluorides, solid, inorganic, as F)
	Cobalt lithium manganese nickel oxide	182442-95-1	IDLH: 10 mg/m³ (as Nickel compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	IDLH: 500 mg/m³ (as Manganese compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	8-Hour TWA: 0.015 mg/m³ (as Nickel compounds)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Cobalt lithium manganese nickel oxide	182442-95-1	8-Hour TWA: 1 mg/m³ (as Manganese compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	15-Minute STEL: 3 mg/m³ (as Manganese compounds)
ACGIH	Copper (massive)	7440-50-8	8-Hour TWA: 1 mg/m³ (dust and mist)
	Copper (massive)	7440-50-8	8-Hour TWA: 0.2 mg/m³ (fume)
	Aluminum	7429-90-5	8-Hour TWA: 1 mg/m³ (Respirable particulate matter)
	Graphite	7782-42-5	8-Hour TWA: 2 mg/m³ (natural and synthetic graphite, respirable particulate matter))
	Lithium hexafluorophosphate(1-)	21324-40-3	8-Hour TWA: 2.5 mg/m³ (Fluorides, as F)
	Cobalt lithium manganese nickel oxide	182442-95-1	TLV-TWA: 0.1 mg/m³ (inhalable particulate matter; as Manganese inorganic compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	TLV-TWA: 0.02 mg/m³ (respirable particulate matter; as Manganese inorganic compounds)
	Cobalt lithium manganese nickel oxide	182442-95-1	TLV-TWA: 0.02 mg/m³ (respirable particulate matter; Cobalt inorganic compounds)
	Polyvinylidene fluoride	24937-79-9	TWA: 10 mg/m³ (Inhalable fraction, Particulates not otherwise regulated)
	Polyvinylidene fluoride	24937-79-9	TWA: 3 mg/m³ (Respirable fraction, Particulates not otherwise specified)
	Polypropylene	9003-07-0	8-Hour TWA: 10 mg/m³ (Inhalable fraction, Particulates not otherwise regulated)
	Polypropylene	9003-07-0	8-Hour TWA: 3 mg/m³ (Respirable fraction, Particulates not otherwise specified)
United States(California)	Copper (massive)	7440-50-8	8-Hour TWA-PEL: 1 mg/m³ (dust and mist)
	Copper (massive)	7440-50-8	8-Hour TWA-PEL: 0.1 mg/m³ (copper metal fume)
	Aluminum	7429-90-5	8-Hour TWA-PEL: 10 mg/m³ (Total dust)
	Aluminum	7429-90-5	8-Hour TWA-PEL: 5 mg/m³ (Respirable fraction)
	Graphite	7782-42-5	8-Hour TWA-PEL: 2.5 mg/m³ (natural graphite, respirable dust)
	Graphite	7782-42-5	8-Hour TWA-PEL: 10 mg/m³ (synthetic graphite, total dust)
	Graphite	7782-42-5	8-Hour TWA-PEL: 5 mg/m³ (synthetic graphite, respirable fraction)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Lithium hexafluorophosphate(1-)	21324-40-3	8-Hour TWA-PEL: 2.5 mg/m³ (Fluorides, as F)
	Cobalt lithium manganese nickel oxide	182442-95-1	PEL: 0.2 mg/m³ (as Manganese compounds)
	Polyvinylidene fluoride	24937-79-9	8-Hour TWA: 10 mg/m³ (Total Dust, Particulates not otherwise regulated)
	Polyvinylidene fluoride	24937-79-9	8-Hour TWA: 5 mg/m³ (Respirable fraction, Particulates not otherwise regulated)
	Polypropylene	9003-07-0	8-Hour TWA-PEL: 10 mg/m³ (Total Dust, Particulates not otherwise regulated)
	Polypropylene	9003-07-0	8-Hour TWA-PEL: 5 mg/m³ (Respirable fraction, Particulates not otherwise regulated)

Biological Limit Values:

Country (Legal Basis)	Substance	Identifier	Determinant	Specimen	Sampling time	Permissible limits
ACGIH	Lithium hexafluorophosphate(1-)	21324-40-3	Fluoride	Urine	Prior to Shift	2 mg/L
	Lithium hexafluorophosphate(1-)	21324-40-3	Fluoride	Urine	End of Shift	3 mg/L

Information on Monitoring Procedures:

Not determined or not applicable.

Appropriate Engineering Controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

The engineering controls described below are applicable to exposure to internal battery material due to spill, leak or break.

Personal Protection Equipment

Eye and Face Protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

The eye protection recommended below is applicable to exposure to internal battery material due to spill, leak or break.

Skin and Body Protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

The skin protection recommended below is applicable to exposure to internal battery material due to

spill, leak or break.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General Hygienic Measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

SECTION 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance	Black and green / Cylindrical
Odor	Not determined or not available.
Odor threshold	Not determined or not available.
pH	Not determined or not available.
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	Not determined or not available.
Flash point (closed cup)	Not determined or not available.
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	Not determined or not available.
Density	Not determined or not available.
Relative density	Not determined or not available.
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	Not determined or not available.
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

Other Information

Voltage	3.7V/3.0V
Electric Capacity	730mAh / 1100mAh
Electric Energy	2.7Wh

SECTION 10: Stability and Reactivity

Reactivity:

Not reactive under recommended handling and storage conditions.

Chemical Stability:

Stable under recommended handling and storage conditions.

Possibility of Hazardous Reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

Conditions to Avoid:

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Incompatible Materials:

Oxidizing agents, Strong Acids, Strong Bases

Hazardous Decomposition Products:

Thermal decomposition products include carbon oxides and lithium oxide fumes.

SECTION 11: Toxicological Information

Acute Toxicity

Assessment:

Harmful if swallowed.

Product Data: No data available.

Substance Data:

Name	Route	Result
Copper (massive)	oral	LD50 Rat: > 2500 mg/kg
	inhalation	LC50 Rat: > 5.11 mg/L (4 hr [Air])
	dermal	LD50 Rat: > 2000 mg/kg
Aluminum	oral	LD50 Rat: >15,900 mg/kg
	inhalation	LC50 Rat: >5.09 mg/L (4 hr [Aerosol; read-across])
Graphite	oral	LD50 Rat: > 2000 mg/kg
	inhalation	LC50 Rat: > 2 mg/L (4 hr [aerosol])
Lithium hexafluorophosphate(1-)	oral	LD50 Rat: 50 - 300 mg/kg
Cobalt lithium manganese nickel oxide	Inhalation ATE	LC50 Rat: 0.5 mg/kg
Ethylene carbonate	Oral ATE	LD50 Rat: 500 mg/kg
	dermal	LD50 Rabbit: > 2000 mg/kg

Skin Corrosion/Irritation

Assessment:

Causes skin irritation.

Product Data:

No data available.

Substance Data:

Name	Result
Lithium hexafluorophosphate(1-)	Causes severe skin burns.

Serious Eye Damage/Irritation

Assessment:

Causes serious eye irritation.

Product Data:

No data available.

Substance Data:

Name	Result
Lithium hexafluorophosphate(1-)	Causes serious eye damage.
Ethylene carbonate	Causes serious eye irritation.

Respiratory or Skin Sensitization

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Species	Result
Cobalt lithium manganese nickel oxide		May cause cancer by inhalation.

International Agency for Research on Cancer (IARC):

Name	Classification
Copper (massive)	Not Applicable
Aluminum	Not Applicable
Graphite	Not Applicable
Lithium hexafluorophosphate(1-)	Not Applicable
Cobalt lithium manganese nickel oxide	Not Applicable
Ethylene carbonate	Not Applicable
Polyvinylidene fluoride	Not Applicable
Rubber, butadiene-styrene	Not Applicable
Polypropylene	Group 3

National Toxicology Program (NTP):

Name	Classification
Copper (massive)	Not Applicable
Aluminum	Not Applicable
Graphite	Not Applicable
Lithium hexafluorophosphate(1-)	Not Applicable
Cobalt lithium manganese nickel oxide	Not Applicable
Ethylene carbonate	Not Applicable
Polyvinylidene fluoride	Not Applicable
Rubber, butadiene-styrene	Not Applicable
Polypropylene	Not Applicable

OSHA Carcinogens: Not applicable

Germ Cell Mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Specific Target Organ Toxicity (Single Exposure)

Assessment:

May cause respiratory irritation.

Product Data:

No data available.

Substance Data: No data available.

Specific Target Organ Toxicity (Repeated Exposure)

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data:

Name	Result
Lithium hexafluorophosphate(1-)	Causes damage to bones and teeth through prolonged or repeated exposure.
Cobalt lithium manganese nickel oxide	Causes damage to lungs through prolonged or repeated exposure by inhalation.
Ethylene carbonate	May cause damage to kidneys through prolonged or repeated oral exposure.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Information on Likely Routes of Exposure:

No data available.

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics:

No data available.

Other Information:

No data available.

SECTION 12: Ecological Information

Acute (Short-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Result
Copper (massive)	Fish LC50 Oncorhynchus mykiss: 0.164 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 0.100 mg/L (48 hr [mobility])

Name	Result
Aluminum	Aquatic Plants EC50 Green algae: 0.2 mg/L (72 hr [growth])
	Fish LC50 Salmo salar: 0.599 mg/L (96 hr)
	Aquatic Invertebrates LC50 Ceriodaphnia dubia: 0.72 mg/L (48 hr)
Graphite	Aquatic Plants EC50 Raphidocelis subcapitata: > 100 mg/L (72 hr [growth rate, cell number])
	Fish LC50 Danio rerio: >100 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >100 mg/L (48 hr [swimming behavior])
Lithium hexafluorophosphate(1-)	Aquatic Plants EC50 Pseudokichneriella subcapitata: >100 mg/L (96 hr [growth rate])
	Aquatic Invertebrates EC50 Daphnia magna: >100 mg/L (48 hr [mobility])
	Fish LC50 Oncorhynchus mykiss: 128 mg/L (96 hr)
Ethylene carbonate	Aquatic Invertebrates LC50 Ceriodaphnia dubia: 5900 mg/L (48 hr [mortality])
	Fish LC50 Oncorhynchus mykiss: >100 mg/L (96 hr [mortality])
	Aquatic Plants EC50 Raphidocelis subcapitata: > 100 mg/L (72 hr [growth rate])

Chronic (Long-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Result
Copper (massive)	Fish NOEC Atherinops affinis: 0.123 mg/L (12 d [hatchability])
	Aquatic Invertebrates NOEC Penaeus mergulensis and Penaeus monodon (prawns): 0.033 mg/L (14 d [growth])
	Aquatic Plants NOEC Lemna minor: 0.03 mg/L (7 d [growth rate])
Aluminum	Fish EC50 Pimephales promelas: 1.078 mg/L (7 d [biomass])
	Aquatic Invertebrates LC50 Daphnia magna: 1.61 mg/L (28 d)
Lithium hexafluorophosphate(1-)	Aquatic Invertebrates EC50 Daphnia magna: 29 mg/L (21 d [reproduction])
	Fish LC50 Pimephales promelas: 1.4 mg/L (22 d)
Ethylene carbonate	Aquatic Plants NOEC Raphidocelis subcapitata: 100 mg/L (72 hr [growth rate])

Persistence and Degradability

Product Data: No data available.

Substance Data:

Name	Result
Copper (massive)	Under test conditions no biodegradation observed.
Aluminum	Biotic degradation is an irrelevant process for inorganic substances.
Graphite	Persistence assessment based on biodegradability is not relevant for inorganic compounds such as this substance.
Lithium hexafluorophosphate(1-)	Biodegradation studies are not applicable to inorganic substances.
Ethylene carbonate	The substance is readily biodegradable. 86.9% degradation in water, measured by CO2 evolution, after 29 days.
Polyvinylidene fluoride	Expected to be persistent in the environment.

Bioaccumulative Potential

Product Data: No data available.

Substance Data:

Name	Result
Aluminum	The available evidence shows the absence of aluminium biomagnification across trophic levels both in the aquatic and terrestrial food chains.
Graphite	Bioaccumulation assessment using a classic BCF assessment is not considered relevant for inorganic compounds such as this substance.
Ethylene carbonate	The substance is not expected to bioaccumulate (log Pow: 0.11).

Mobility in Soil

Product Data: No data available.

Substance Data:

Name	Result
Graphite	Mobility in soil assessment based on KOC/Kd values are not relevant for inorganic compounds such as this substance.
Lithium hexafluorophosphate(1-)	In case of environmental release of LiPF6, the speed of its reaction with water and the subsequent dissociation of the soluble hydrolysis products will be such that only the adsorptive behaviour of the resultant ions has relevance for environmental mobility. Fluoride may be strongly adsorbed in acid soils and clays. Lithium may be adsorbed onto certain clays, but is generally expected to show limited adsorption to most soils and to river sediments. Inorganic phosphate is expected to be fairly mobile in soils.
Ethylene carbonate	The substance is mobile, therefore, there is low potential for adsorption to soil and sediment (Koc at 20 °C: 11.9 L/kg [QSAR])

Results of PBT and vPvB assessment

Product Data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance Data:

PBT assessment:

Copper (massive)	The substance is not PBT.
Aluminum	PBT assessment does not apply to inorganic substances.
Graphite	PBT assessment does not apply to inorganic compounds such as this substance.
Lithium hexafluorophosphate(1-)	PBT assessment does not apply to inorganic substances.
Ethylene carbonate	The substance is not PBT.

vPvB assessment:

Copper (massive)	The substance is not vPvB.
Aluminum	vPvB assessment does not apply to inorganic substances.
Graphite	vPvB assessment does not apply to inorganic compounds such as this substance.
Lithium hexafluorophosphate(1-)	vPvB assessment does not apply to inorganic substances.
Ethylene carbonate	The substance is not vPvB.

Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal Methods:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory agencies. Dispose of in accordance with all applicable local, regional, state and federal regulations.

Contaminated packages:

Not determined or not applicable.

SECTION 14: Transport Information

United States Transportation of Dangerous Goods (49 CFR DOT)

UN Number	3480 / 3481
UN Proper Shipping Name	Lithium-ion batteries / Lithium-ion batteries contained in equipment
UN Transport Hazard Class(es)	9 
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None
Passenger Air/Rail	5 kg
Cargo Aircraft Only	35 kg
Stowage Category	A
Additional Information	The Lithium-ion battery ZXCR123A has passed the test UN38.3, according to the report ID: MTIO7GMG7320967U5.

International Maritime Dangerous Goods (IMDG)

UN Number	3480 / 3481
UN Proper Shipping Name	LITHIUM-ION BATTERIES / LITHIUM-ION BATTERIES CONTAINED IN EQUIPMENT
UN Transport Hazard Class(es)	9 
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None
EmS Number	F-A, S-I
Stowage Category	A
Excepted Quantities	E0
Additional Information	According to the special provision 188 of IMDG (41-22) or the special provision 188 of <<Recommendations on the Transport of Dangerous Goods-Model Regulations>> (23rd), the goods are not subject to other provision of this code.

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN Number	3480 /3481
UN Proper Shipping Name	Lithium-ion batteries / Lithium-ion batteries contained in equipment

ZXCR123A Lithium-ion battery

UN Transport Hazard Class(es)	9 
Packing Group	II
Environmental Hazards	None
Special Precautions for User	None
ERG Code	9FZ
Excepted Quantities	E0
Limited Quantity	Forbidden
Additional Information	According to the Packaging Instruction 965 section IB of IATA DGR 66th Edition for Transporation, Cargo aircraft only.

SECTION 15: Regulatory Information

United States Regulations

Inventory Listing (TSCA):

7440-50-8	Copper (massive)	Listed - Active
7429-90-5	Aluminum	Listed - Active
7782-42-5	Graphite	Listed - Active
21324-40-3	Lithium hexafluorophosphate(1-)	Listed - Active
182442-95-1	Cobalt lithium manganese nickel oxide	Listed - Active
96-49-1	Ethylene carbonate	Listed - Active
24937-79-9	Polyvinylidene fluoride	Listed - Active
61789-96-6	Rubber, butadiene-styrene	Not Listed
9003-07-0	Polypropylene	Listed - Active

Significant New Use Rule (TSCA Section 5):

7440-50-8	Copper (massive)	Not Listed
7429-90-5	Aluminum	Not Listed
7782-42-5	Graphite	Not Listed
21324-40-3	Lithium hexafluorophosphate(1-)	Not Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed
96-49-1	Ethylene carbonate	Not Listed
24937-79-9	Polyvinylidene fluoride	Not Listed

61789-96-6	Rubber, butadiene-styrene	Not Listed
9003-07-0	Polypropylene	Not Listed

Export Notification under TSCA Section 12(b):

7440-50-8	Copper (massive)	Not Listed
7429-90-5	Aluminum	Not Listed
7782-42-5	Graphite	Not Listed
21324-40-3	Lithium hexafluorophosphate(1-)	Not Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed
96-49-1	Ethylene carbonate	Not Listed
24937-79-9	Polyvinylidene fluoride	Not Listed
61789-96-6	Rubber, butadiene-styrene	Not Listed
9003-07-0	Polypropylene	Not Listed

SARA Section 302 Extremely Hazardous Substances: None of the ingredients are listed.

SARA Section 313 Toxic Chemicals:

7440-50-8	Copper (massive)	Listed
7429-90-5	Aluminum	Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed

CERCLA:

7440-50-8	Copper (massive)	Listed	5000 lb
182442-95-1	Cobalt lithium manganese nickel oxide	Listed	

RCRA: None of the ingredients are listed.

Section 112(r) of the Clean Air Act (CAA): None of the ingredients are listed.

Massachusetts Right to Know:

7440-50-8	Copper (massive)	Listed
7429-90-5	Aluminum	Listed
7782-42-5	Graphite	Listed
96-49-1	Ethylene carbonate	Listed

New Jersey Right to Know:

7440-50-8	Copper (massive)	Listed
7429-90-5	Aluminum	Listed
7782-42-5	Graphite	Listed
21324-40-3	Lithium hexafluorophosphate(1-)	Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed

New York Right to Know:

7440-50-8	Copper (massive)	Listed
7429-90-5	Aluminum	Listed

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21324-40-3	Lithium hexafluorophosphate(1-)	Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed

Pennsylvania Right to Know:

7440-50-8	Copper (massive)	Listed
7429-90-5	Aluminum	Listed
7782-42-5	Graphite	Listed
182442-95-1	Cobalt lithium manganese nickel oxide	Listed
96-49-1	Ethylene carbonate	Listed

California Proposition 65:

⚠**WARNING:** This product can expose you to Cobalt lithium manganese nickel oxide; which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov

Additional information: Not determined.

SECTION 16: Other Information

Abbreviations and Acronyms: None

Disclaimer:

This product has been classified in accordance with OSHA HCS 2012 guidelines. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

NFPA: 0-0-0

HMIS: 0-0-0

Initial Preparation Date: 07.02.2025

End of Safety Data Sheet