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 PTY LTD**

Address 60 Ashford Avenue, Milperra, NSW, 2214, AUSTRALIA

Telephone (02) 9783 6000

Fax (02) 9783 6001

Email tradesales@whiteint.com.au

Website http://www.whiteint.com.au

1.4 Emergency telephone numbers

Emergency 0400 335 644

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA 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.

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 a Poisons Information Centre on 13 11 26 (Australia Wide) 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 & compounds	SWA [Proposed]	--	1	--	--
Aluminium (metal dust)	SWA [AUS]	--	10	--	--
Aluminium (welding fumes) (as Al)	SWA [AUS]	--	5	--	--
Aluminium, pyro powders (as Al)	SWA [AUS]	--	5	--	--
Cobalt (metal and inorganic)	SWA [Proposed]	--	0.02	--	--
Cobalt, metal dust & fume (as Co) (h)	SWA [AUS]	--	0.05	--	--
Copper (fume)	SWA [AUS]	--	0.2	--	--
Copper (fume, dusts & mists)	SWA [Proposed]	--	0.01	--	--
Copper, dusts & mists (as Cu)	SWA [AUS]	--	1	--	--
Graphite (all forms except fibres)	SWA [AUS]	--	3	--	--
Nickel, metal	SWA [AUS]	--	1	--	--
Nickel, soluble compounds (as Ni)	SWA [AUS]	--	0.1	--	--
Polyvinyl chloride	SWA [Proposed]	--	1	--	--

Biological limits

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

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

9.1 Information on basic physical and chemical properties

Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
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 exposure	Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery 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 BY THE CRITERIA OF THE ADG CODE

	LAND TRANSPORT (ADG)	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) or less than 500 kg/L by Australian Road and Rail. 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

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings

AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)
All components are listed on AIIC, 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
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
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)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
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.

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