1. PRODUCT IDENTIFICATION

Product Name	Century Yuasa 12V LFP 100AH Slimline Lithium Battery	
Other Names	Lithium-ion batteries (including lithium-ion polymer batteries)	
Recommended Use of the Chemical and Restrictions on Use	Energy storage	
Details of Manufacturer or Importer	Distributed in Australia by: Century Yuasa Batteries 37-65 Cobalt Street Carole Park. QLD. 4300.	Distributed in New Zealand by: Century Yuasa Batteries 259 Church Street Onehunga. Auckland 1061
Emergency Telephone Number	07 3361 61 61	0800 93 93 93

2. HAZARD(S) IDENTIFICATION

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the Model WHS Regulations and the ADG Code.

GHS Classification: Acute Toxicity (Oral) Category 2, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 1B, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 1, Germ Cell Mutagenicity Category 1A, Carcinogenicity Category 2, Hazardous to the Aquatic Environment Acute Hazard Category 2, Hazardous to the Aquatic Environment Long-Term Hazard Category 2

GHS Label Elements

Signal Word: **DANGER**

IN THE EVENT OF INTERNAL CONTENTS EXPOSED

Hazard Statement(s)	H300	Fatal if swallowed.
	H312	Harmful in contact with skin.
	H314	Causes severe skin burns and eye damage.
	H317	May cause an allergic skin reaction.
	H340	May cause genetic defects.
	H351	Suspected of causing cancer.
	H411	Toxic to aquatic life with long lasting effects.

IN THE EVENT OF INTERNAL CONTENTS EXPOSED

Precautionary Statement(s) General	P101	If medical advice is needed, have product container or label at hand
	P102	Keep out of reach of children
	P103	Read carefully and follow all instructions
Precautionary Statement(s) Prevention	P201	Obtain special instructions before use.
	P260	Do not breathe dust/fume.
	P264	Wash all exposed external body areas thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P280	Wear protective gloves, protective clothing, eye protection and face protection.
	P273	Avoid release to the environment.
	P272	Contaminated work clothing should not be allowed out of the workplace.
Precautionary Statement(s) Response	P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
	P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P308+P313	IF exposed or concerned: Get medical advice/ attention.
	P302+P352	IF ON SKIN: Wash with plenty of water and soap.
	P363	Wash contaminated clothing before reuse.
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
	P362+P364	Take off contaminated clothing and wash it before reuse.
	P391	Collect spillage.
	P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Precautionary Statement(s) Storage	P405	Store locked up
Precautionary Statement(s) Disposal	P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation

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3. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredient	Identification	Content % weight
Lithium Ion Phosphate (LiFePO4)	15365-14-7	16-20
Iron (Fe)	7439-89-6	14.5-20
styrene/ butadiene/ acrylonitrile copolymer	9003-56-9	14-15
lithium fluorophosphate	21324-40-3	10-15
Copper (Cu)	7440-50-8	6.5-10
carbon black	1333-86-4	5-10
Graphite ($C_{24}X_{12}$)	7782-42-5	5-8
Aluminium (Al)	7429-90-5	3-5.5
tin	7440-31-5	2-5
polyethylene	9002-88-4	2
Ingredients determined not to be hazardous	N/A	5-10

4. FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

The chemicals in this product are contained in a sealed package. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.

Eye Contact

Generally, not applicable.
If this product comes in contact with eyes:
- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact

Generally, not applicable.
If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation

Generally not applicable.
- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

Ingestion

Generally not applicable.
Not considered a normal route of entry.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

Symptoms Caused by Exposure

Treat symptomatically.

Medical Attention and Special Treatment

No special instructions specified.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Equipment

Water	CO_2	Dry Chemical Powder	Foam	BCF/ Vaporising Liquid	**Class D**	Li-Ion Battery
✗	✓	✓	✗	✓	✗	✓

Specific Hazards Arising from the Chemical

Slight hazard when exposed to heat, flame and oxidisers.

Fire/Explosion Hazard

Non combustible.
Not considered to be a significant fire risk.

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Heating may cause expansion or decomposition leading to violent rupture of containers.
May emit acrid smoke. May emit corrosive and poisonous fumes.
Articles and manufactured articles may constitute a fire hazard where polymers form their outer layers or where combustible packaging remains in place.
Certain substances, found throughout their construction, may degrade or become volatile when heated to high temperatures. This may create a secondary hazard

Hazchem Code: 2Y

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

In case of rupture, avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Ise personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Refer to protective measures listed in sections 7 and 8.

Environmental Precautions

Prevent product from contaminating soil and from entering sewers or waterways.

Methods and Materials for Containment and Cleaning Up

Minor Spills

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Place in suitable containers for disposal.

Major Spills

- Clean up all spills immediately.
- Wear protective clothing, safety glasses, dust mask, gloves.
- Secure load if safe to do so. Bundle/collect recoverable product.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Water may be used to prevent dusting.
- Collect remaining material in containers with covers for disposal.
- Flush spill area with water.

7. HANDLING AND STORAGE

Precautions for Safe Handling

- Do not connect the positive terminal to the negative terminal with electrical wire or chain. Avoid polarity reverse connection when installing the battery to an instrument.
- Do not wet the battery with water, seawater or acid; or expose to strong oxidizer.
- Do not damage or remove the external tube.
- Keep the battery away from heat and fire.
- Do not disassemble or reconstruct the battery; or solder the battery directly.
- Do not give a mechanical shock or deform.
- Do not use unauthorized charger or other charging method.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Avoid physical damage to containers.

Other information

- Keep dry.
- Store under cover.
- Protect containers against physical damage.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Keep out of reach of children.
- Store out of direct sunlight
- Store away from incompatible materials.

Conditions for Safe Storage

Suitable container

- Generally packaging as originally supplied with the article or manufactured item is sufficient to protect against physical hazards.
- If repackaging is required ensure the article is intact and does not show signs of wear. As far as is practicably possible, reuse the original packaging or something providing a similar level of protection to both the article and the handler.

Storage Incompatibility

- Avoid contamination of water, foodstuffs, feed or seed.
- Keep dry
- NOTE: May develop pressure in containers; open carefully. Vent periodically.

✓= May be stored together ⓘ= May be stored together with specific preventions ×= Must not be stored together

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Control Measures - This product presents no health hazards to the user when used according to label directions for its intended purposes

Source	Ingredient	Material name	TWA	STEL	peak	Notes
Australia Exposure Standards	copper	Copper, dusts & mists (as Cu)	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper (fume)	0.2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	carbon black	Carbon Black	3 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	graphite	Graphite (all forms except fibres) (respirable dust) (natural & synthetic)	3 mg/m3	Not Available	Not Available	Containing no asbestos and < 1% crystalline silica.
Australia Exposure Standards	aluminium	Aluminium (metal dust)	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium (welding fumes) (as Al)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium, pyro powders (as Al)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	tin	Tin, metal	2 mg/m3	Not Available	Not Available	Not Available

Ingredient	TEEL-1	TEEL-2	TEEL-3
iron	3.2 mg/m3	35 mg/m3	150 mg/m3
lithium fluorophosphate	7.5 mg/m3	83 mg/m3	500 mg/m3
copper	3 mg/m3	33 mg/m3	200 mg/m3
carbon black	9 mg/m3	99 mg/m3	590 mg/m3
graphite	6 mg/m3	330 mg/m3	2,000 mg/m3
tin	6 mg/m3	67 mg/m3	400 mg/m3
polyethylene	16 mg/m3	170 mg/m3	1,000 mg/m3

Biological Monitoring: Not required

Engineering Controls
- General exhaust is adequate under normal operating conditions.
- Articles or manufactured items, in their original condition, generally don't require engineering controls during handling or in normal use.
- Exceptions may arise following extensive use and subsequent wear, during recycling or disposal operations where substances, found in the article, may be released to the environment.

Personal Protection

Respirator Type
- Not normally required with normal use.
- OTHERWISE: A-AUS P2

Eye Protection
- None under normal operating conditions.
- OTHERWISE: Safety glasses.

Clothing
- Not normally required with normal use.
- In case of battery leaking, protective clothing.

Glove Type
- None under normal operating conditions.
- OTHERWISE: Rubber Gloves.

Footwear
- None under normal operating conditions.
- OTHERWISE: rubber Gloves

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Lithium-ion battery, Insoluble in water.		
Odour	Not Available	**Lower explosive limits**	Not Applicable
Odour threshold	Not Available	**Vapour pressure (kPa)**	Not Applicable
pH	Not Applicable	**Vapour density (Air = 1)**	Not Applicable
Melting point/ freezing point (°C)	Not Applicable	**Relative density (Water = 1)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	**Solubility in water (g,L)**	Immiscible

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Flash point	Not Applicable	**Partition coefficient: n-octanol/water**	Not Available
Evaporation rate	Not Applicable	**Auto-ignition temperature**	Not Applicable
Flammability	Not Applicable	**Decomposition temperature (°C)**	Not Available
Upper explosive limits	Not Applicable	**Viscosity**	Not Applicable

10. STABILITY AND REACTIVITY

Reactivity	Not available	Chemical stability	• Unstable in the presence of incompatible materials. • Product is considered stable. • Hazardous polymerisation will not occur.
Possibility of hazardous reactions	None under normal process.	Conditions to avoid	Heating, mechanical abuse and electrical abuse.
Incompatible materials	•Avoid contamination of water, foodstuffs, feed or seed.	Hazardous decomposition products	Carbon oxides

11. TOXICOLOGICAL INFORMATION ACUTE EFFECTS

No adverse health effects expected if the product is handled in accordance with this safety data sheet and the product label.

Symptoms or effects that may arise if the product ruptures are:-

Inhaled

There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. Exposure to toxic levels of butadiene may cause dry nose, mouth and throat, also, fatigue, headache, falling sensation, nausea, respiratory paralysis, central nervous system depression, loss of consciousness and even death. Liver and kidney damage as well as genetic damage may occur. The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur. Impurities found in carbons, including iodine, can be toxic. Carbon dusts in the air may cause irritation of the mucous membranes, eyes and skin. Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever". Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur. Tolerance to the fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours following removal from exposure.

Ingestion

The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. There is strong evidence to suggest that this material can cause, if swallowed once, very serious, irreversible damage of organs. Lithium, in large doses, can cause dizziness and weakness. If a low salt diet is in place, kidney damage can result. Acute toxic responses to aluminium are confined to the more soluble forms. Ingestion of finely divided carbon may produce gagging and constipation. Aspiration does not appear to be a concern as the material is generally regarded as inert and is often used as a food additive. A metallic taste, nausea, vomiting and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. The vomitus is usually green/blue and discolours contaminated skin. As absorption of phosphates from the bowel is poor, poisoning this way is less likely. Effects can include vomiting, tiredness, fever, diarrhoeblood pressure, slow pulse, cyanosis, spasms of the wrist, coma and severe body spasms.

Skin contact

Skin contact with the material may be harmful; systemic effects may result following absorption.
The material can produce chemical burns following direct contact with the skin. There is strong evidence to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage of organs. Though considered non-harmful, slight irritation may result from contact because of the abrasive nature of the aluminium oxide particles. Thus, it may cause itching and skin reaction and inflammation. The diepoxide of butadiene has been reported to cause mild effect of causing skin tumours in mice when applied topically on its skin. Irritation and skin reactions are possible with sensitive skin Open cuts abraded or irritated skin should not be exposed to this material Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs (intra-uterine devices), and in killing fungi and algae. Although copper is used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications. Entry into the bloodstream through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably

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protected. Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

Eye

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Irritation of the eyes may produce a heavy secretion of tears (lachrymation). Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely. Eyes exposed to carbon particulates may be liable to irritation and burning. These can remain in the eye causing inflammation lasting weeks and can cause permanent dark dotty discolouration. Copper salts, in contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.

Chronic effects

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Acrylonitrile sensitises the skin and airway. Chronic exposures may produce severe liver inflammation.
Animal testing shows long term exposure to aluminium oxides may cause lung disease and cancer, depending on the size of the particle. The smaller the size, the greater the tendencies of causing harm. Exposure to large doses of aluminium has been connected with the degenerative brain disease Alzheimer's Disease.
Prolonged or repeated inhalation of dust may cause in lung disease. Graphite workers have reported symptoms of headaches, coughing, depression, low appetite, difficult breathing and black sputum. Workers suffering from this have generally worked in the industry for long periods, (10 years or more), although some cases have been reported after as little as four years. Lithium compounds can affect the nervous system and muscle. This can cause tremor, inco-ordination, spastic jerks and very brisk reflexes. There is insufficient evidence to suggest that exposure to carbon black causes increased susceptibility to cancer or other ill effects. Some lung changes can occur after a prolonged period of exposure as well as increased strain on the right side of the heart. Occupational exposure to 1,3-butadiene, enhanced or caused cancer at different body sites with significant associated mortality, in animal testing and on the basis of human data. The predominant tumours are lymphomas, cancers of the testes, stomach and intestines, breast, thyroid, pancreas, throat and womb. Sodium phosphate dibasic can cause stones in the kidney, loss of mineral from the bones and loss of thyroid gland function. Chronic excessive intake of iron have been associated with damage to the liver and pancreas. People with a genetic disposition to poor control over iron are at an increased risk.

Acute Toxicity	Skin Irritation / Corrosion	Serious Eye Damage / Irritation	Respiratory Or Skin Sensitisation	Mutagenicity	Carcinogenicity	Reproductivity	Stot - Single Exposure	Stot - Repeated Exposure	Aspiration Hazard
✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

✓ = Data required to make classification available ✗ = Data either not available or does not fill the criteria for classification

12. ECOLOGICAL INFORMATION

Degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
polyethylene	LOW	LOW

Bio-accumulative Potential

Ingredient	Bioaccumulation
polyethylene	LOW (LogKOW = 1.2658)

Mobility in Soil

Ingredient	Mobility
polyethylene	LOW (KOC = 14.3)

13. DISPOSAL CONSIDERATIONS

Safe Handling & Disposal — Recycle wherever possible or consult manufacturer for recycling op
Consult State Land Waste Management Authority for disposal.

Environmental Regulations — Refer to section 15

14. TRANSPORT INFORMATION

REGULATED FOR TRANSPORT OF DANGEROUS GOODS ADG, IATA and IMDG

Labels Required


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	Land and Sea Transport	Air Transport
Marine Pollutant	Yes	
Hazchem Code	2Y	

Land Transport

UN Number	3480
Proper Shipping Name	Lithium ion batteries (including lithium-ion polymer batteries)
Transport Hazard Class	Class 9 Sub-risk Not Applicable
Packing Group	Not Applicable
Environmental Hazards for Transport Purposes	Environmentally hazardous
Special Precautions for User	Special Provisions 188 230 310 348 376 377 384 387 390 Limited Quantity 0

Air Transport

UN Number	3480
Proper Shipping Name	Lithium ion batteries (including lithium-ion polymer batteries)
Transport Hazard Class	Class 9 Sub-risk Not Applicable
Packing Group	Not Applicable
Environmental Hazards for Transport Purposes	Environmentally hazardous
ERG Code	12FZ
Special Provisions	A88 A99 A154 A164 A183 A201 A206 A213 A331 A334 A802 Cargo Only Packing Instructions See 965 Cargo Only Maximum Qty / Pack See 965 Passenger and Cargo Packing Instructions Forbidden Passenger and Cargo Maximum Qty / Pack Forbidden Passenger and Cargo Limited Quantity Packing Instructions Forbidden Passenger and Cargo Limited Maximum Qty / Pack Forbidden

Sea Transport

UN Number	3480
Proper Shipping Name	Lithium ion batteries (including lithium-ion polymer batteries)
Transport Hazard Class	Class 9 Sub-risk Not Applicable
Packing Group	Not Applicable
Environmental Hazards for Transport Purposes	Marine Pollutant
Special Precautions for User	EMS Number F-A,S-I Special Provisions 188 230 310 348 376 377 384 387 Limited Quantities 0

15. REGULATORY INFORMATION

lithium iron phosphate is found on the following regulatory lists	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 4 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 5 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 6 International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured - Nanomaterials (MNMS)
iron is found on the following regulatory lists	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 2 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 4 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 5 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 6 Australian Inventory of Industrial Chemicals (AIIC) International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured - Nanomaterials (MNMS)
copper is found on the following regulatory lists	Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 4 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 5 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) Schedule 6 Australian Inventory of Industrial Chemicals (AIIC)

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carbon black is found on the following regulatory lists	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured - Nanomaterials (MNMS) Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals Australian Inventory of Industrial Chemicals (AIIC) Chemical Footprint Project - Chemicals of High Concern List International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
graphite is found on the following regulatory lists	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
aluminium is found on the following regulatory lists	Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals Australian Inventory of Industrial Chemicals (AIIC) International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
tin is found on the following regulatory lists	Australian Inventory of Industrial Chemicals (AIIC) International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
polyethylene is found on the following regulatory lists	Australian Inventory of Industrial Chemicals (AIIC) International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

16. ANY OTHER RELEVANT INFORMATION

Revision Information	1	**Date**	October 2022

Abbreviations	
PC－TWA:	Permissible Concentration-Time Weighted Average
PC－STEL:	Permissible Concentration-Short Term Exposure Limit
IARC:	International Agency for Research on Cancer
STEL:	Short Term Exposure Limit
TEEL:	Temporary Emergency Exposure Limit。
IDLH:	Immediately Dangerous to Life or Health Concentrations
ES:	Exposure Standard
OSF:	Odour Safety Factor
NOAEL :	No Observed Adverse Effect Level
LOAEL:	Lowest Observed Adverse Effect Level
TLV:	Threshold Limit Value
LOD:	Limit Of Detection
OTV:	Odour Threshold Value
BCF:	Bio-Concentration Factors
BEI:	Biological Exposure Index
AIIC:	Australian Inventory of Industrial Chemicals
DSL:	Domestic Substances List
NDSL:	Non-Domestic Substances List
EINECS:	European Inventory of Existing Commercial chemical Substances
ELINCS:	European List of Notified Chemical Substances
NLP:	No-Longer Polymers
ENCS:	Existing and New Chemical Substances Inventory
NZIoC:	New Zealand Inventory of Chemicals
TSCA:	Toxic Substances Control Act
NCI:	National Chemical Inventory

References

IATA Lithium Battery Guidance Document (2021)
IMDG Code (incorporating amendment 39-18)
SafeWork Australia Workplace Exposure Standards for Airborne Contaminants (19 December 2019)
WorkSafe New Zealand Workplace exposure standards and biological exposure indices Ed 12-1 (November 2020)

ACGIH Threshold Limit Values https://www.osha.gov/annotated-pels/note (accessed May 2021)

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