

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery

HCB Technologies LTD

Chemwatch: 7975-14

Version No: 2.1

Safety Data Sheet according to the Health and Safety at Work (Hazardous Substances) Regulations 2017

Chemwatch Hazard Alert Code: 4

Initial Date: 20/08/2025

Revision Date: 20/08/2025

Print Date: 25/08/2025

S.GHS.NZL.EN.E

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

Product Identifier

Product name	HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery
Chemical Name	Not Applicable
Synonyms	RM12-75LFP;; RM12-100LFP;; RM12-130LFP;; RM12-200LFP;; RM12-120LFPSL
Proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries) (contains lithium iron phosphate)
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	Lithium iron phosphate battery. NOTE: Hazard statement relates to battery contents. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically or electrically abused. Completion of charging process includes evolution of highly flammable and explosive hydrogen gas which is readily detonated by electric spark. Do not attach/detach metal clips or operate open switches during charging process because of arcing/sparking hazard
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Details of the manufacturer or importer of the safety data sheet

Registered company name	HCB Technologies LTD
Address	19 Timberly Rd Mangere Auckland 2022 New Zealand
Telephone	+64 9 622 0033
Fax	Not Available
Website	Not Available
Email	sales@hcb.co.nz

Emergency telephone number



Association / Organisation	HCB Technologies LTD	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone number(s)	0800 422 228 [Mon – Fri 7.00am to 5.00pm]	+64 800 700 112 (ID#: 7975-14)
Other emergency telephone number(s)	Not Available	+61 3 9573 3188

SECTION 2 Hazards identification

Classification of the substance or mixture

Classification ^[1]	Acute Toxicity (Oral) Category 3, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Acute Toxicity (Inhalation) Category 3, Germ Cell Mutagenicity Category 1, Carcinogenicity Category 2, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Long-Term Hazard Category 3
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	6.1C (inhalation), 6.1C (oral), 6.4A, 6.5B (contact), 6.6A, 6.7B, 6.9B, 9.1C

Label elements

Hazard pictogram(s)	 
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Signal word	Danger
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Hazard statement(s)

H301	Toxic if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H340	May cause genetic defects.

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H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

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.
P271	Use only outdoors or in a well-ventilated area.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.

Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
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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No further product hazard information.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
15365-14-7	42.5	<u>lithium iron phosphate</u>
Not Available	20	Organic Solvent / Proprietary
7782-42-5	17.5	<u>graphite</u>
7429-90-5	12.5	<u>aluminium</u>
7440-50-8	7.2	<u>copper</u>
7440-02-0	0.3	<u>nickel</u>

Legend: 1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. ▶ Generally not applicable.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor. ▶ Generally not applicable.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. ▶ Generally not applicable.
Ingestion	<ul style="list-style-type: none"> ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ 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. ▶ Transport to hospital or doctor without delay. ▶ Generally not applicable.

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Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

for phosphate salts intoxication:

- ▶ All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
- ▶ Ingestion of large quantities of phosphate salts (over 1.0 grams for an adult) may cause an osmotic catharsis resulting in diarrhoea and probable abdominal cramps. Larger doses such as 4-8 grams will almost certainly cause these effects in everyone. In healthy individuals most of the ingested salt will be excreted in the faeces with the diarrhoea and, thus, not cause any systemic toxicity. Doses greater than 10 grams hypothetically may cause systemic toxicity.
- ▶ Treatment should take into consideration both anionic and cation portion of the molecule.
- ▶ All phosphate salts, except calcium salts, have a hypothetical risk of hypocalcaemia, so calcium levels should be monitored.

for copper intoxication:

- ▶ Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
- ▶ Administer egg white and other demulcents.
- ▶ Maintain electrolyte and fluid balances.
- ▶ Morphine or meperidine (Demerol) may be necessary for control of pain.
- ▶ If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
- ▶ Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
- ▶ If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
- ▶ It is unlikely that methylene blue would be effective against the occasional methaemoglobinemia and it might exacerbate the subsequent haemolytic episode.
- ▶ Institute measures for impending renal and hepatic failure.

[GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]

- ▶ A role for activated charcoals for emesis is, as yet, unproven.
- ▶ In severe poisoning CaNa₂EDTA has been proposed.

[ELLENHORN & BARCELOUX: Medical Toxicology]

Clinical effects of lithium intoxication appear to relate to duration of exposure as well as to level.

- ▶ Lithium produces a generalised slowing of the electroencephalogram; the anion gap may increase in severe cases.
- ▶ Emesis (or lavage if the patient is obtunded or convulsing) is indicated for ingestions exceeding 40 mg (Li)/Kg.
- ▶ Overdose may delay absorption; decontamination measures may be more effective several hours after cathartics.
- ▶ Charcoal is not useful. No clinical data are available to guide the administration of catharsis.
- ▶ Haemodialysis significantly increases lithium clearance; indications for haemodialysis include patients with serum levels above 4 meq/L.
- ▶ There are no antidotes.

[Ellenhorn and Barceloux: Medical Toxicology]

For acute or short term repeated exposures to iron and its derivatives:

- ▶ Always treat symptoms rather than history.
- ▶ In general, however, toxic doses exceed 20 mg/kg of ingested material (as elemental iron) with lethal doses exceeding 180 mg/kg.
- ▶ Control of iron stores depend on variation in absorption rather than excretion. Absorption occurs through aspiration, ingestion and burned skin.
- ▶ Hepatic damage may progress to failure with hypoprothrombinaemia and hypoglycaemia. Hepatorenal syndrome may occur.
- ▶ Iron intoxication may also result in decreased cardiac output and increased cardiac pooling which subsequently produces hypotension.
- ▶ Serum iron should be analysed in symptomatic patients. Serum iron levels (2-4 hrs post-ingestion) greater than 100 ug/dL indicate poisoning with levels, in excess of 350 ug/dL, being potentially serious. Emesis or lavage (for obtunded patients with no gag reflex) are the usual means of decontamination.
- ▶ Activated charcoal does not effectively bind iron.
- ▶ Catharsis (using sodium sulfate or magnesium sulfate) may only be used if the patient already has diarrhoea.
- ▶ Deferoxamine is a specific chelator of ferric (3+) iron and is currently the antidote of choice. It should be administered parenterally. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 Firefighting measures

Extinguishing media

- ▶ **DO NOT** use halogenated fire extinguishing agents.

Special hazards arising from the substrate or mixture

Fire Incompatibility	<ul style="list-style-type: none"> ▶ Reacts with acids producing flammable / explosive hydrogen (H₂) gas ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use water delivered as a fine spray to control fire and cool adjacent area.
Fire/Explosion Hazard	<p>Combustible. Will burn if ignited. Combustion products include: carbon monoxide (CO) carbon dioxide (CO₂) phosphorus oxides (PO_x) metal oxides other pyrolysis products typical of burning organic material.</p> <p>When aluminium oxide dust is dispersed in air, firefighters should wear protection against inhalation of dust particles, which can also contain hazardous substances from the fire absorbed on the alumina particles.</p> <ul style="list-style-type: none"> ▶ Particle size, coating and dispersion in air determine reactivity of aluminium ▶ Bulk aluminium is not combustible but at high temperatures, molten aluminium can be ignited and burn. ▶ Molten aluminium may react violently if it comes into contact with water. Aluminium is rapidly oxidised by water at 180 °C ▶ Atomised aluminium dusts are potentially explosive. Electric sparks may ignite the dust cloud even in atmospheres containing low oxygen (7%).

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

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Minor Spills	<ul style="list-style-type: none">▶ Clean up all spills immediately.▶ Secure load if safe to do so.▶ Bundle/collect recoverable product.▶ Collect remaining material in containers with covers for disposal.
Major Spills	<ul style="list-style-type: none">▶ Clean up all spills immediately.▶ Wear protective clothing, safety glasses, dust mask, gloves.▶ Secure load if safe to do so. Bundle/collect recoverable product.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none">▶ Avoid all personal contact, including inhalation.▶ Wear protective clothing when risk of exposure occurs.▶ Use in a well-ventilated area.▶ Prevent concentration in hollows and sumps.
Other information	<ul style="list-style-type: none">▶ Store in original containers.▶ Keep containers securely sealed.▶ Store in a cool, dry area protected from environmental extremes.▶ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	<p>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.</p> <ul style="list-style-type: none">▶ Lined metal can, lined metal pail/ can.▶ Plastic pail.▶ Polyliner drum.▶ Packing as recommended by manufacturer.
Storage incompatibility	<p>Inorganic derivative of Group 11 metal. For aluminas (aluminium oxide): Incompatible with hot chlorinated rubber. In the presence of chlorine trifluoride may react violently and ignite. -May initiate explosive polymerisation of olefin oxides including ethylene oxide. -Produces exothermic reaction above 200°C with halocarbons and an exothermic reaction at ambient temperatures with halocarbons in the presence of other metals.</p> <ul style="list-style-type: none">▶ WARNING: Avoid or control reaction with peroxides. All <i>transition metal</i> peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.▶ The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono- or poly-fluorobenzene show extreme sensitivity to heat and are explosive.▶ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.▶ Phosphates are incompatible with oxidising and reducing agents.▶ Phosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides.▶ Partial oxidation of phosphates by oxidizing agents may result in the release of toxic phosphorus oxides. <p>Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms. The less active metals will not burn in air but:</p> <ul style="list-style-type: none">▶ can react exothermically with oxidising acids to form noxious gases.▶ catalyse polymerisation and other reactions, particularly when finely divided▶ react with halogenated hydrocarbons (for example, copper dissolves when heated in carbon tetrachloride), sometimes forming explosive compounds.▶ Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.▶ Elemental metals may react with azo/diazo compounds to form explosive products.▶ Some elemental metals form explosive products with halogenated hydrocarbons.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	lithium iron phosphate	Respirable dust (not otherwise classified)	3 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	lithium iron phosphate	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	graphite	Graphite, all forms except graphite fibres respirable dust	3 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	aluminium	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	aluminium	Aluminium metal and insoluble aluminium compounds (including pyro powder, aluminium oxide, and aluminium welding fumes), as AI respirable dust	1 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	aluminium	Respirable dust (not otherwise classified)	3 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	copper	Respirable dust (not otherwise classified)	3 mg/m3	Not Available	Not Available	Not Available

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Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	copper	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	copper	Copper and its inorganic compounds, as Cu respirable dust	0.01 mg/m3	Not Available	Not Available	dsen - Dermal sensitiser
New Zealand Workplace Exposure Standards (WES)	nickel	Nickel, elemental or metallic respirable dust	0.005 mg/m3	Not Available	Not Available	carcinogen category 2 - Suspected human carcinogen sen - Sensitiser

Ingredient	Original IDLH	Revised IDLH
lithium iron phosphate	Not Available	Not Available
graphite	1,250 mg/m3	Not Available
aluminium	Not Available	Not Available
copper	100 mg/m3	Not Available
nickel	10 mg/m3	Not Available

Exposure controls

Appropriate engineering controls	<p>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.</p> <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p>
Individual protection measures, such as personal protective equipment	
Eye and face protection	<p>No special equipment required due to the physical form of the product.</p> <ul style="list-style-type: none"> Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. Chemical goggles. Whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. [AS/NZS 1337.1, EN166 or national equivalent] Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> Elbow length PVC gloves <p>No special equipment required due to the physical form of the product.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> Overalls. P.V.C apron. Barrier cream. Skin cleansing cream.

Respiratory protection

Respiratory protection not normally required due to the physical form of the product.

Where significant concentrations of the material are likely to enter the breathing zone, a Class P3 respirator may be required. Class P3 particulate filters are used for protection against highly toxic or highly irritant particulates.

Filtration rate: Filters at least 99.95% of airborne particles

Suitable for:

- Relatively small particles generated by mechanical processes eg. grinding, cutting, sanding, drilling, sawing.
- Sub-micron thermally generated particles e.g. welding fumes, fertilizer and bushfire smoke.
- Biologically active airborne particles under specified infection control applications e.g. viruses, bacteria, COVID-19, SARS
- Highly toxic particles e.g. Organophosphate Insecticides, Radionuclides, Asbestos

Note: P3 Rating can only be achieved when used with a Full Face Respirator or Powered Air-Purifying Respirator (PAPR). If used with any other respirator, it will only provide filtration protection up to a P2 rating.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Battery		
Physical state	Article	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available

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Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available
Heat of Combustion (kJ/g)	Not Available	Ignition Distance (cm)	Not Available
Flame Height (cm)	Not Available	Flame Duration (s)	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	Enclosed Space Ignition Deflagration Density (g/m3)	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

a) Acute Toxicity	There is sufficient evidence to classify this material as acutely toxic.
b) Skin Irritation/Corrosion	Based on available data, the classification criteria are not met.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating
d) Respiratory or Skin sensitisation	There is sufficient evidence to classify this material as sensitising to skin or the respiratory system
e) Mutagenicity	There is sufficient evidence to classify this material as mutagenic
f) Carcinogenicity	There is sufficient evidence to classify this material as carcinogenic
g) Reproductivity	Based on available data, the classification criteria are not met.
h) STOT - Single Exposure	Based on available data, the classification criteria are not met.
i) STOT - Repeated Exposure	There is sufficient evidence to classify this material as toxic to specific organs through repeated exposure
j) Aspiration Hazard	Based on available data, the classification criteria are not met.

Inhaled	There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. 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.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	There is strong evidence to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage of organs. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, 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 protected.
Eye	This material causes serious eye irritation.
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. 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 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. For copper and its compounds (typically copper chloride): Acute toxicity: There are no reliable acute oral toxicity results available. Animal testing shows that skin in exposure to copper may lead to hardness of the skin, scar formation, exudation and reddish changes. Inflammation, irritation and injury of the skin were noted. Repeat dose toxicity: Animal testing shows that very high levels of copper monochloride may cause anaemia. Sodium phosphate dibasic can cause stones in the kidney, loss of mineral from the bones and loss of thyroid gland function.

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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.

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄) Rechargeable Battery	TOXICITY	IRRITATION
	Not Available	Not Available
lithium iron phosphate	TOXICITY	IRRITATION
	dermal (rat) LD50: 2000 mg/kg ^[1]	Not Available
	Inhalation (Rat) LC50: >3.2 mg/4h ^[1]	
graphite	TOXICITY	IRRITATION
	Oral (Rat) LD50: >2000 mg/kg ^[1]	
aluminium	TOXICITY	IRRITATION
	Inhalation (Rat) LC50: >2 mg/L4h ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
	Oral (Rat) LD50: >200 mg/kg ^[1]	Skin: no adverse effect observed (not irritating) ^[1]
copper	TOXICITY	IRRITATION
	Inhalation (Rat) LC50: >2.3 mg/4h ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
	Oral (Rat) LD50: >2000 mg/kg ^[1]	Skin: no adverse effect observed (not irritating) ^[1]
nickel	TOXICITY	IRRITATION
	Inhalation (Rat) LC50: 0.733 mg/4h ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
	Oral (Mouse) LD50: 0.7 mg/kg ^[2]	Skin: no adverse effect observed (not irritating) ^[1]
nickel	TOXICITY	IRRITATION
	Oral (Rat) LD50: 5000 mg/kg ^[2]	Skin (Human): 5pph/48H - Severe

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄) Rechargeable Battery	<p>For aluminium compounds:</p> <p>Aluminium present in food and drinking water is poorly absorbed through the gastrointestinal tract. The bioavailability of aluminium is dependent on the form in which it is ingested and the presence of dietary constituents with which the metal cation can complex. Ligands in food can have a marked effect on absorption of aluminium, as they can either enhance uptake by forming absorbable (usually water soluble) complexes (e.g., with carboxylic acids such as citric and lactic), or reduce it by forming insoluble compounds (e.g., with phosphate or dissolved silicate).</p> <p>Considering the available human and animal data it is likely that the oral absorption of aluminium can vary 10-fold based on chemical form alone. Although bioavailability appears to generally parallel water solubility, insufficient data are available to directly extrapolate from solubility in water to bioavailability.</p> <p>For oral intake from food, the European Food Safety Authority (EFSA) has derived a tolerable weekly intake (TWI) of 1 milligram (mg) of aluminium per kilogram of bodyweight. In its health assessment, the EFSA states a medium bioavailability of 0.1 % for all aluminium compounds which are ingested with food.</p> <p>The material may trigger oculogyric crisis. The term "oculogyric" refers to the bilateral elevation of the visual gaze.</p> <p>Initial symptoms include restlessness, agitation, malaise, or a fixed stare. Then comes the more characteristically described extreme and sustained upward deviation of the eyes. In addition, the eyes may converge, deviate upward and laterally, or deviate downward.</p>
COPPER	<p>WARNING: Inhalation of high concentrations of copper fume may cause "metal fume fever", an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever.</p> <p>for copper and its compounds (typically copper chloride):</p> <p>Acute toxicity: There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5 groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. The LD50 values of copper monochloride were 2,000 mg/kg bw or greater for male (no deaths observed) and 1,224 mg/kg bw for female. Four females died at both 1500 and 2000 mg/kg bw, and one at 1,000 mg/kg bw.</p>
NICKEL	<p>Oral (rat) TDLo: 500 mg/kg/5D-I Inhalation (rat) TCLo: 0.1 mg/m³/24H/17W-C</p> <p>Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen</p> <p>[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]</p>
HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄) Rechargeable Battery & COPPER & NICKEL	<p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.</p>
HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄) Rechargeable Battery & GRAPHITE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.</p>
HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄) Rechargeable Battery & LITHIUM IRON PHOSPHATE & GRAPHITE & ALUMINIUM	<p>No significant acute toxicological data identified in literature search.</p>
HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO ₄)	<p>Goitrogenic:</p> <p>Goitrogens are substances that suppress the function of the thyroid gland by interfering with iodine uptake, which can, as a result, cause an enlargement of the thyroid (a goitre).</p> <p>Goitrogens include:</p>

Continued...

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery

Rechargeable Battery & LITHIUM IRON PHOSPHATE	<ul style="list-style-type: none">- Vitexin, a flavonoid, which inhibits thyroid peroxidase, contributing to goitre- Thiocyanate and perchlorate, which decrease iodide uptake by competitive inhibition and consequently increase release of TSH from the pituitary gland- Lithium, which inhibits thyroid hormone release- Certain foods, such as soy and millet (containing vitexins) and vegetables in the genus Brassica (which includes broccoli, Brussels sprouts, cabbage, cauliflower and horseradish).- Caffeine (found in coffee, tea, cola and chocolate), which acts on thyroid function as a suppressant.
HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery & NICKEL	WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✓
Mutagenicity	✓	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
lithium iron phosphate	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	>24mg/l	2
	EC50	48h	Crustacea	>28mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	>=24mg/l	2
	LC50	96h	Fish	>28mg/l	2
graphite	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	>100mg/l	2
	EC50	48h	Crustacea	>100mg/l	2
	NOEC(ECx)	96h	Fish	>=100mg/l	2
	LC50	96h	Fish	>100mg/l	2
aluminium	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	0.017mg/L	2
	EC50	48h	Crustacea	0.736mg/L	2
	EC50	96h	Algae or other aquatic plants	0.005mg/L	2
	NOEC(ECx)	72h	Algae or other aquatic plants	>100mg/l	1
	LC50	96h	Fish	0.078-0.108mg/l	2
copper	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	0.011-0.017mg/L	4
	EC50	48h	Crustacea	<0.001mg/L	4
	EC50	96h	Algae or other aquatic plants	0.03-0.058mg/l	4
	NOEC(ECx)	48h	Fish	<0.001mg/L	4
	LC50	96h	Fish	0.003mg/L	2
nickel	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	0.18mg/l	1
	EC50	48h	Crustacea	>100mg/l	1
	EC50	96h	Algae or other aquatic plants	0.174-0.311mg/L	4
	EC50(ECx)	72h	Algae or other aquatic plants	0.18mg/l	1
	LC50	96h	Fish	0.06mg/L	4

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Continued...

HCB Technologies Remco Lithium Deep Cycle Iron Phosphate (LiFePO4) Rechargeable Battery

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

For Metal:

Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.

Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.

Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further.

For copper:

Atmospheric Fate - Copper is unlikely to accumulate in the atmosphere due to a short residence time for airborne copper aerosols. Airborne coppers, however, may be transported over large distances. Air Quality Standards: no data available.

Aquatic Fate: Toxicity of copper is affected by pH and hardness of water.

For copper: Ecotoxicity - Significant effects are expected on various species of microalgae, some species of macroalgae, and a range of invertebrates, including crustaceans, gastropods and sea urchins. Copper is moderately toxic to crab and their larvae and is highly toxic to gastropods (mollusks, including oysters, mussels and clams). In fish, the acute lethal concentrations of copper depends both on test species and exposure conditions. Waters with high concentrations of copper can have significant effects on diatoms and sensitive invertebrates, notably cladocerans (water fleas).

For Copper: Typical foliar levels of copper are: Uncontaminated soils (0.3-250 mg/kg) ; Contaminated soils (150-450 mg/kg) ; Mining/smelting soils (6.1-25 mg/kg) 80 mg/kg 300 mg/kg).

Terrestrial Fate: Plants - Generally, vegetation reflects soil copper levels in its foliage. This is dependent upon the bioavailability of copper and the physiological requirements of species concerned. Crops are often more sensitive to copper than the native flora.

For Phosphate: The principal problems of phosphate contamination of the environment relates to eutrophication processes in lakes and ponds. Phosphorus is an essential plant nutrient and is usually the limiting nutrient for blue-green algae.

Aquatic Fate: Lakes overloaded with phosphates is the primary catalyst for the rapid growth of algae in surface waters. Planktonic algae cause turbidity and flotation films.

For lithium (Anion):

Environmental Fate: Lithium hypochlorite is an algacide, disinfectant, fungicide and food

contact surface sanitizer. Its primary use is as a pesticide to control algae, bacteria and mildew in swimming pool water systems, hot tubs and spas. Lithium is an element that occurs naturally at low levels in food and drinking water. Compounds of lithium that would most likely enter freshwater environments are from mining, refining, and fabrication.

For Aluminium and its Compounds and Salts:

Environmental Fate - As an element, aluminium cannot be degraded in the environment, but may undergo various precipitation or ligand exchange reactions. Aluminium in compounds has only one oxidation state (+3), and would not undergo oxidation-reduction reactions under environmental conditions. Aluminium can be complexed by various ligands present in the environment (e.g., fulvic and humic acids). The solubility of aluminium in the environment will depend on the ligands present and the pH.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
aluminium	LOW (LogKOW = 0.33)
nickel	LOW (LogKOW = -0.57)

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority.
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Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.

The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.

SECTION 14 Transport information

Labels Required



Marine Pollutant	NO
HAZCHEM	2Y

Land transport (UN)

14.1. UN number or ID number	3480	
14.2. UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries) (contains lithium iron phosphate)	
14.3. Transport hazard class(es)	Class	9
	Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	188; 230; 310; 348; 376; 377; 384; 387
	Limited quantity	0

Air transport (ICAO-IATA / DGR)

14.1. UN number	3480	
14.2. UN proper shipping name	Lithium ion batteries (including lithium ion polymer batteries) (contains lithium iron phosphate)	
14.3. Transport hazard class(es)	ICAO/IATA Class	9
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	12FZ
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	A88 A99 A154 A164 A183 A201 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 (IMDG-Code / GGVSee)

14.1. UN number	3480	
14.2. UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries) (contains lithium iron phosphate)	
14.3. Transport hazard class(es)	IMDG Class	9
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-A , S-I
	Special provisions	188 230 310 348 376 377 384 387
	Limited Quantities	0

14.7. Maritime transport in bulk according to IMO instruments

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
lithium iron phosphate	Not Available
graphite	Not Available
aluminium	Not Available
copper	Not Available
nickel	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
lithium iron phosphate	Not Available
graphite	Not Available

Product name	Ship Type
aluminium	Not Available
copper	Not Available
nickel	Not Available

SECTION 15 Regulatory information

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

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002504	Additives Process Chemicals and Raw Materials Acutely Toxic Carcinogenic Group Standard 2020
HSR002613	Metal Industry Products Acutely Toxic Carcinogenic Group Standard 2020
HSR002625	N.O.S. Acutely Toxic Carcinogenic Group Standard 2020
HSR002671	Surface Coatings and Colourants Acutely Toxic Carcinogenic Group Standard 2020
HSR100425	Pharmaceutical Active Ingredients Group Standard 2020
HSR002592	Industrial and Institutional Cleaning Products Acutely Toxic Carcinogenic Group Standard 2020
HSR100757	Veterinary Medicines Limited Pack Size Finished Dose Group Standard 2020
HSR100758	Veterinary Medicines Non dispersive Closed System Application Group Standard 2020
HSR100759	Veterinary Medicines Non dispersive Open System Application Group Standard 2020

Please refer to Section 8 of the SDS for any applicable tolerable exposure limit or Section 12 for environmental exposure limit.

lithium iron phosphate is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Workplace Exposure Standards (WES)

graphite is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

aluminium is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

copper is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Land Transport Rule: Dangerous Goods 2005 - Schedule 1 Quantity limits for dangerous goods
New Zealand Workplace Exposure Standards (WES)

nickel is found on the following regulatory lists

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)
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

Additional Regulatory Information

Not Applicable

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity (Compliance Certificate)	Quantity (Compliance Certificate - Farms >4 ha)
6.1C	1000 kg or 1000 L	3500 kg or 3500 L

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Maximum quantities of certain hazardous substances permitted on passenger service vehicles

Subject to Regulation 13.14 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Gas (aggregate water capacity in mL)	Liquid (L)	Solid (kg)	Maximum quantity per package for each classification
6.1C	120	1	3	
6.5A or 6.5B	120	1	3	

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (lithium iron phosphate)
Canada - DSL	Yes
Canada - NDSL	No (lithium iron phosphate; graphite; aluminium; copper; nickel)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (graphite; aluminium; copper; nickel)
Korea - KECI	Yes
New Zealand - NZIoC	No (lithium iron phosphate)
Philippines - PICCS	No (lithium iron phosphate)
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (lithium iron phosphate)
Vietnam - NCI	Yes
Russia - FBEPH	No (lithium iron phosphate)
UAE - Control List (Banned/Restricted Substances)	No (lithium iron phosphate; copper)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

SECTION 16 Other information

Revision Date	20/08/2025
Initial Date	20/08/2025

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

- PC - TWA: Permissible Concentration-Time Weighted Average
- PC - STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- 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: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- MARPOL: International Convention for the Prevention of Pollution from Ships
- IMSBC: International Maritime Solid Bulk Cargoes Code
- IGC: International Gas Carrier Code
- IBC: International Bulk Chemical Code
- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- 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
- ▶ KECI: Korea Existing Chemicals Inventory
- ▶ NZIoC: New Zealand Inventory of Chemicals
- ▶ PICCS: Philippine Inventory of Chemicals and Chemical Substances
- ▶ TSCA: Toxic Substances Control Act
- ▶ TCSI: Taiwan Chemical Substance Inventory
- ▶ INSQ: Inventario Nacional de Sustancias Químicas
- ▶ NCI: National Chemical Inventory
- ▶ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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