Rechargeable Lithium Ion Battery Pack
Safety Data Sheet

Section 1. Identification of the material and the supplier

Product: **Rechargeable Lithium Ion Battery Pack**
Product Model No: **990202 (D146-00-0097)**

ANZ Distributor:	**Getinge Australia**	**Getinge Australia (NZ Branch)**
Address	11 Help Street Level 7, Suite 701 Chatswood NSW 2067 AUS	600 Great South Road Building B, Level 2 Ellerslie, Auckland, 1051 NZ
Telephone	1800 438 464	0800 1 438 4643

Emergency Telephone: **AUS +61 2 8014 4558**
NZ +64 9 929 1483 or **0800 764 766** (National Poison Centre)

Date of SDS Preparation: 13 June 2023

Section 2. Hazards Identification

This substance is NOT hazardous according to the EPA Hazardous Substances (Classification) Notice 2020 - This product is considered as a Manufactured Article.

Under normal usage, there is no contact with electrolyte and no hazard exists. Abusive conditions such as crush, severe drop, puncture etc must be avoided as that can lead to fire and explosion of the battery.
If exposed to high temperature or fire, cell may leak electrolyte and in extreme cases explode. The vented gas may contain among others Hydrogen Fluoride.

Section 3. Composition / Information on Ingredients

Battery Product Matrix

Inventus Power P/N	Customer P/N	Pack Configuration	Pack Nominal Voltage V	Pack Nominal Capacity (Ah)	Pack Energy (Wh)
990202	-	4S6P	15	14.3	213.6

Chemical Composition:

Component	**Material**	**Formula**	**CAS Number**
Positive Electrode	Lithium Cobaltate	LiCoO2	12190-79-3
Negative Electrode	Graphite	C	7440-44-0
Electrolyte	Ethylene Carbonate – Solvent	C3H4O3	96-49-1

	Diethyl Carbonate – Solvent	C5H10O3	105-58-8
	Lithium Hexafluroph osphate – Salt	LiPF6	21324-40-3
Copper		Cu	7440-50-8
Iron		Fe	7439-89-6
Aluminum		Al	7429-90-5

Section 4. First Aid Measures

Under normal operating condition, contents of the cells are in sealed (polymer pouch/metal can or cylinder) condition and pose no threat to the user.
Exposure to the cell internal content happens under abusive conditions.

If in Eyes — Contents of open battery may cause eye irritation. Flush eyes immediately with water for at least 15 minutes and seek medical attention.

If on Skin — Contents of open battery may cause skin irritation. Wash skin with copious amount of soap and water.

If Swallowed — Seek medical attention immediately. Induce vomiting.

If Inhaled — Contents of open battery may cause respiratory irritation. Move to fresh air immediately and seek medical attention.

Most important symptoms and effects, both acute and delayed
Symptoms: No effect under routine handling and use.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable.
Hazards from products	Corrosive fumes may be present during fire. Gases from the burning fire will include Hydrogen Fluoride, Carbon oxides, Hydrocarbons among others.
Suitable Extinguishing media	In case of Fire use CO2 or CLASS D fire extinguisher. In case battery burns with other combustible, use corresponding fire extinguisher.
Precautions for firefighters and special protective clothing	Use protective equipment (gloves, breathing apparatus, goggles etc.)
HAZCHEM CODE	**2Y**

Section 6. Accidental Release Measures

Battery material is enclosed in either metal casing or in laminate and does not release easily under normal usage. Under abuse condition such as puncture, high heat exposure, electrical abuse electrolyte containing vinyl chloride salt in organic solvent may leak out. See section 4 for first aid measure. Seek medical attention.

Section 7. Handling and Storage

Precautions for Handling:

- Do not disassemble, crush or otherwise abuse the battery.

- Do not open the battery.
- Charge: Charge only with dedicated/specific chargers designed for this battery.
- Discharge: Discharge within the temperature limits of the battery detailed in the specification.

Precautions for Storage:

- Store within the recommended temperature limit of the battery (read instruction manual for specific limits).
- Do not expose to high temperature (60^{o}C).
- Avoid short circuit of the battery.
- Short circuit of the battery may cause release of gas and may pose burn hazard.
- Caution: This battery when abused may pose fire, explosion and severe burn hazard. Handle with caution.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA ppm	TWA mg/m^3	STEL ppm	STEL mg/m^3
Aluminium, Metal dust (as Al) [7429-90-5]	-	10	-	-
Copper and its inorganic compounds, as Cu [7440-50-8]	-	0.01	-	-

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices APRIL 2022 13TH EDITION.

Engineering Controls

Under normal use ventilation not required.

Personal Protection Equipment:

Eyes	Use safety goggles if exposed to internal content of the cell/battery.
Hands	Use acid resistant safety gloves if exposed to internal content of the cell/battery.
Respiratory	Use air mask if exposed to internal content of the cell/battery.

Section 9 Physical and Chemical Properties

Appearance	Solid
Form Factor	Mostly cylindrical
Odour	Not available
Odour Threshold	Not available
pH	Not available
Boiling Point	Not available
Melting Point	Not available
Freezing Point	Not available
Flash Point	Not available
Flammability	Not available
Upper and Lower Explosive Limits	Not available
Vapour Pressure	Not available
Vapour Density	Not available
Specific Gravity	Not available
Reactivity in Water	Not available
Water Solubility	Insoluble in water

Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Viscosity	Not available
Particle Characteristics	Not available

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Possibility of hazardous reactions	Not reactive under normal condition of usage.
Conditions to Avoid	Avoid high temperature and mechanical abuse.
Incompatible Materials	No data available.
Hazardous Decomposition Products	Gases from the burning fire will include Hydrogen Fluoride, Carbon oxides, Hydrocarbons among others.

Section 11 Toxicological Information

Acute Toxicity:
Not known for Lithium Cobaltate, Aluminum, and Graphite or Lithium Iron Phosphate. Copper causes gastrointestinal disturbance in 60-100mg sized coarse particulate. TDLo- Rabbit 375mg/kg

Organic electrolyte LD50, oral - -Rat 2000mg/kg or more

Local Effects:
Not known for Lithium Cobaltate, Graphite and Organic Electrolyte or Lithium Phosphate. Aluminum has no known local effects. Copper in coarse particulate is eye irritant
No known carcinogen in this product.

Section 12. Ecotoxicological Information

Battery is not biodegradable. Do not dispose in landfill. Please follow local regulations regarding recycle and disposal.

Section 13. Disposal Considerations

Disposal Method:
Dispose/Recycle according to the applicable municipal, state and federal regulations.
Do not dispose in household or commercial waste bin.

Disposal methods to avoid: None known.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2020 and SNZ HB 5433:2021

Road, Rail, Sea and Air Transport

Battery Pack:

UN No	3480
Class - Primary	9
Packing Group	II
Proper Shipping Name	LITHIUM ION BATTERIES.
Marine Pollutant	No
Special Provisions	No: 188, 230, 310, 348

Battery pack contained in the equipment or packed with the equipment.

UN No	3481
Class - Primary	9
Packing Group	II
Proper Shipping Name	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Marine Pollutant	No
Special Provisions	No: 188, 230, 348

When large amount of batteries is transported by ship, vehicle and railroad, avoid high temperature and dew condensation.
Avoid transportation which may cause damage of package.

Section 15 Regulatory Information

This substance is NOT hazardous according to the EPA Hazardous Substances (Classification) Notice 2020 - This product is considered as a Manufactured Article.

Section 16 Other Information

Glossary

EC_{50}	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC_{50}	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD_{50}	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices April 2022 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

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Please contact the New Zealand distributor, if further information is required.

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