GARMIN LITHIUM METAL BATTERY INFORMATION

GARMIN LTD. OR ITS SUBSIDIARIES
C/O GARMININTERNATIONAL
1200 E. 151ST STREET
OLATHE, KS 66062 USA

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LITHIUM METAL BATTERY

This data sheet is applicable to Lithium Metal batteries contained in Garmin Aviation (GDU, GI, GTN) and Marine products (GPS®, GPSMap®, GNC®, GNS®, GDL®, GIA®, GNX™; GTN®, echoMAP™); and Outdoor/Fitness products (Oregon® 550, eTrex® H/HC, Edge® 305, Vector™, FR 50, 60 & 70, Rally™, Cadence Sensor, Speed Sensor, Swim™, Delta®; Footpod, Running Dynamics Pod, Heart Rate Monitor and Chirp®, Tacx™; vivofit™, vivoki™, BarkLimiter™); and Auto / Truck/Motorcycle products (nüvi® 5000, 855, 885T, Zumo®550, Tire Pressure Monitor Sensor), HRM-Dual™, HRM-Run™, HRM-Tri™, HRM-Swim™, Varia™; vívomove®, Xero®; eBike Remote. This data sheet also applies to product replacement Lithium Metal batteries when available.

I. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lithium Metal Batteries located within above products

Company Name: Garmin International, Inc. 1200 E. 151st Street, Olathe, KS 66062

Garmin Australasia Pty Ltd., PO Box 684, Seven Hills, NSW 1730

Product Category: Article

CHEMTREC® 24 hr Emergency: US 800-424-9300

CHEMTREC® 24 hr Emergency: AUS 61-290372994, Toll-Free: 1-800-262-8200

CHEMTREC® 24 hr Emergency: International 703-527-3887

II. HAZARD(S) IDENTIFICATION

Emergency overview:

Not considered dangerous as manufactured. If battery is damaged, exposure to product components may cause eye, skin and respiratory tract irritation. Combustion products from a fire involving batteries may be harmful.

Potential Health Effects: Eyes.

- None anticipated under normal product use and handling conditions. If battery is damaged, exposure may cause severe irritation or burns

Potential Health Effects: Skin

- None anticipated under normal product use and handling conditions. If battery is damaged, exposure may cause severe irritation or burns

Potential Health Effects: Ingestion

- Not considered a likely route of exposure under normal product use and handling conditions. Ingestions of material from a damaged battery may cause serious burns to mouth, esophagus, and gastrointestinal tract.

Potential Health Effects: Inhalation

- None anticipated under normal product use and handling conditions. If battery is damaged, exposure to vapors or mist may cause respiratory irritation.

HMIS Ratings: Health: 0 Fire: 0 HMIS Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

III. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	WT Percent	CAS #
Manganese Dioxide	40.0%	1313-13-9
Nickel Plated Steel	33.0%	12671-80-6
Polyethylene	8.0%	9002-88-4
Polypropylene	7.0%	9003-07-0
Propylene Carbonate	6.0%	108-32-7
1,2 Dimethoxy Ethane (DME)	2.8%	110-71-4
Lithium Metal	2.5%	7439-93-2
Lithium Perchlorate	0.7%	7791-03-9

IV. FIRST-AID MEASURES

Symptoms of Exposure: Under conditions of normal use there should be no exposure to hazardous materials. In the event of an opened battery situation:

- **Inhalation:** Contents of an opened battery cell can cause respiratory irritation
- **Ingestion**: Contents of battery cell can cause stomach irritation / burns. Seek medical help immediately
- **Skin Contact**: Contents of an opened battery cell can cause skin irritation
- **Eye Contact**: Contents of an opened battery cell can cause eye irritation

V. FIRE-FIGHTING MEASURES

- **Extinguishing Media**: Class D or Lith-X fire extinguisher or dry sand. Avoid using water as an extinguishing media.
- **Unusual Fire & Explosion Hazards**: Fires in confined spaces or involving large quantities of lithium-ion batteries may produce dangerous fumes. Do not open, crush, disassemble, or incinerate battery. Do not expose battery to extreme heat or fire. Mishandling of batteries can result in the spontaneous release of flammable gasses. Burning of these batteries will generate toxic and corrosive fumes. Firefighters should use self-contained breathing apparatus.

VI. ACCIDENTAL RELEASE MEASURES

Remove personnel from area until fumes dissipate. If the skin has come into contact with the electrolyte, it should be washed thoroughly with water.

Sand or earth should be used to absorb any exuded material. Seal leaking battery and contaminated absorbent material in plastic bag and dispose of as Special Waste in accordance with local regulations.

VII. HANDLING ANDSTORAGE

- **Handling**: Short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Avoid short circuits as the heat can burn attendant skin and rupture the battery cell case. Batteries packaged in bulk containers should not be shaken.
- **Charging**: The lithium metal batteries contained in rechargeable products are designed for recharging. Charge battery before use. Observe the specified charge rate since higher rates can cause a rise in internal gas pressure which may result in damaging heat generation or cell rupture and/or venting. Non rechargeable batteries: Lithium metal batteries in some Garmin products are not designed to be recharged. Do not attempt to charge a battery that is not designed for recharging.
- **CAUTION**: Do not puncture or otherwise damage the battery or dispose in fire, mix with other battery types, charge above specified rate, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

No protective equipment is necessary under conditions of normal use. In the event of a fire or opened cell:

- **Eye/Face protection:** Goggles and face shield
- **Skin Protection:** Gloves and protective clothing
- **Respiratory Protection**: Inorganic dust respirator

IX. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: Cylindrical or prismatic shape
- **Odor**: none
- **pH**: Not Applicable
- **Flash point**: Not applicable unless individual components exposed
- **Flammability**: Not applicable unless individual components exposed
- **Relative density:** Not applicable unless individual components exposed
- **Solubility (water):** Not applicable unless individual components exposed

X. STABILITY AND REACTIVITY

Product is stable when used under normal conditions

- **Conditions to avoid:** Heat above 70°C or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble Short circuit. Expose over a long period to humid conditions.
- **Materials to Avoid**: none
- **Hazardous Decomposition Products:** Carbon Monoxide, Hydrofluoric Acid

XI. TOXICOLOGICAL INFORMATION

Acute Dose Effects

A: General Product Information: If product is ruptured, material may cause irritation to the skin, eyes and respiratory tract.

B: Component Analysis – LD50/LC50: No LD50/LC50's are available for this product's components.

Carcinogenicity

A: General Product Information: No information available for the product.

B: Component Carcinogenicity: None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

XII. ECOLOGICAL INFORMATION

- **Mammalian effects:** None known if used/disposed of correctly
- **Eco-toxicity:** None known if used/disposed of correctly
- **Bioaccumulation potential**: None known if used/disposed of correctly
- **Environmental fate**: None known if used/disposed of correctly

XIII. DISPOSAL CONSIDERATIONS (NON-MANDATORY)

Recycle or dispose in accordance with applicable Federal, state, and local regulations. Do not incinerate or heat batteries to temperatures above 100°C (212°F).

XIV. TRANSPORT INFORMATION (NON-MANDATORY)

Lithium metal batteries used in Garmin products are of a type eligible for transport under the exceptions set forth in Section II of Packing Instructions 968-970 of the International Air Transport Association Dangerous Goods Regulations and Special Provision 188 of the International Maritime Dangerous Goods Code. Lithium metal batteries used in Garmin products have lithium metal content no more than 1 g per cell and 2 g per battery or battery pack.

Lithium metal batteries used in Garmin products are of a type that has been demonstrated to pass the tests set forth in the UN Manual of Tests and Criteria, Part III, Subsection 38.3.

Batteries shipped as individual or bulk batteries (separate from equipment) under Packing Instruction 968 are forbidden from carriage on passenger aircraft and must bear the Cargo Aircraft Only label.

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XV. REGULATORY INFORMATION (NON-MANDATORY)

OSHA: Hazardous Communication Standard (29CFR 1910.1200): Non-Hazardous

XVI. OTHER INFORMATION

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein.