MSDS: Li-Poly battery CT-2500

1. Product and company identification

Product: Rechargeable Lithium Polymer multi-cell battery pack
Model: CT-2500
Nominal voltage: 3.7V
Average capacity: 2600mAh
Multi-cells: PL713450-2P

Manufacturer:
Viamed Ltd., 15 Station Road, Cross Hills, Keighley, West Yorkshire BD20 7DT, United Kingdom

Emergency phone number: +44 (0)1535 634542

2. Composition and information on ingredients

Chemical characterization: Mixture

Chemical composition	CAS No.	EC#	Weight (%)	Hazard statement	Precaution statement
Cobaltate, lithium	12190-79-3	235-362-0	38	H317, H350	P201, P280, P308 + P313
Aluminium	7429-90-5	231-072-3	9	H228	P210, P240, P241, P280, P370+P378
Graphite	7782-42-5	231-955-3	18	non known	non known
Copper	7440-50-8	231-159-6	9	non known	non known
Carbonic acid, ethyl methyl ester	623-53-0	613-014-2	18.5	H226, H315, H319, H335	P261, P305+P351+P338

3. Hazards identification

Physical:
Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The Lithium-Poly batteries described in this Material Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the Manufacturer.
Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not externally exposed, provided that the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

Chemical:
This product is a battery which contains chemical substances. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. The case of rupture, the below hazards exist.

- CAS# 12190-79-3 (Cobaltate, lithium)
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Skin sensitization (Category 1)
Carcinogenicity (Category 1B)

Hazard statement(s)
H317 May cause an allergic skin reaction.
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P280 Wear protective gloves.
P308 + P313 IF exposed or concerned: Seek medical advice/ attention.

- CAS# 7429-90-5 (Aluminium)
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Flammable solids (Category 1), H228

Hazard statement(s)
H228 Flammable solid.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P370 + P378 In case of fire: Use sand for extinction.

- CAS# 623-53-0 (Carbonic acid, ethyl methyl ester;)
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Flammable liquids (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2)
Specific target organ toxicity - single exposure (Category 3)

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P261 Avoid breathing vapours.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Other hazards
Physical and chemical hazards: see section 10
Human health hazards: see section 11
Environmental hazards: see section 12

4. First-aid measures

In case of battery rupture or explosion, evacuate personnel from contaminated area and provide maximum ventilation to clear out corrosive fumes/gases and pungent odour.

After Eye contact:

Flush with plenty of water for several minutes whilst holding eyelids open. Seek immediate medical attention if irritation persists.

After Skin contact:

Remove all contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Do not apply greases or ointments. If irritation occurs, seek medical attention.

After Inhalation:

Remove victim to fresh air and ventilate the contaminated area.
Give oxygen or artificial respiration if breathing is difficult. Seek medical attention.

After swallowing:
Seek immediate medical attention.
Do not induce vomiting.
Ensure that mucus does not obstruct the airway.
Do not give anything by mouth to an unconscious person.

5. Fire-fighting measures

Suitable extinguishing media:
Use extinguishing agent suitable for local conditions and the surrounding environment, such as dry powder, CO_2 or foam extinguishers.

Unsuitable extinguishing media:
Type D extinguishers

Specific Hazards arising from the chemical:
Special hazards arising from the substance or mixture
Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium-Poly batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature (>150°C (302°F)), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries which are in near proximity.

Special protective actions for fire-fighters:
Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental release measures

The material contained within the batteries would only be expelled under abusive conditions.
Personal precautions:
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

Protective equipment:
Not applicable

Emergency procedures:
Remove ignition sources, evacuate area. Using shovel or broom, cover battery or spilled substances with dry sand or vermiculite. Sweep up using a method that does not generate dust.
Place in approved container (after cooling if necessary) and dispose in accordance with local regulations.

Environmental precautions:
Do not allow material to be released to the environment without proper governmental permits.

Methods and materials for containment and cleaning up:
All waste must refer to the United Nations, national and local regulations for disposal.
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7. Handling and storage

Information about fire and explosion protection
Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Conditions for safe storage, including any incompatibilities:
Requirements to be met by storerooms and receptacles
Store in a cool, dry and well-ventilated place

Information about storage in one common storage facility
Batteries must be stored in a temperature range of -20 ℃ ~ 45 ℃.
If the battery has to be storied for a long time (over 3 months), the environmental condition should be:
Temperature: 23±5℃
Humidity: 65±20%RH
The voltage for a long time storage shall be 3.80V~3.95V range.

Read and observe the following warnings and precautions to ensure correct and safe use of Lithium-Poly batteries.
Do not immerse the battery in water or wet it.
Do not use or store the battery near sources of heat such as a fire or heater.
Do not use any chargers other than those recommended.
Do not reverse the positive (+) and negative (-) terminals.
Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
Do not put the battery into a fire or apply direct heat to it.
Do not short out the battery by connecting wires or other metal objects to the positive (+) and negative (-) terminals.
Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
Do not strike, throw or subject the battery to sever physical shock.
Do not directly solder the battery terminals.
Do not disassemble or modify the battery in any way.
Do not place the battery in a microwave oven or pressurized container.
Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacity, type or brand.
Do not use the battery if it gives off an odour, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.
Do not use or store the battery where it is exposed to extreme heat, such as near the window of a car in direct sunlight on a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.
If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.
Use the battery only under the following environmental conditions. Failure to do so can result in reduced performance or a shorten service life. Recharging the battery outside of these temperatures can cause the battery to overheat, explode or catch fire.

Operating environment:
When charging the battery: 0℃～45℃
When discharging the battery: -20℃～60℃
When stored up to 30 days: -10℃～45℃
When stored up to 90 days: -10℃～35℃

Keep away from heat, avoiding long time exposure of sunlight.

8. Exposure controls & personal protection

Respiratory protection:	Not necessary under normal use. In all fire situations, use self-contained breathing apparatus.
Hand protection:	Not necessary under normal use. Use gloves if handling a leaking or ruptured battery.
Eye protection:	Not necessary under normal use. Wear safety goggles or glasses with side shields if handling a leaking or ruptured battery.
Skin protection:	Not necessary under normal use Use rubber protective working in case of handling of a ruptured battery.

9. Physical and chemical properties

Appearance	Prismatic shape
Odour	Not applicable
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
Solubility (other)	Not applicable unless individual components exposed
Other information	Voltage: 3.7V Electrical capacity: 2600mAh Electrical Energy: 9.62Wh

10. Stability and reactivity

Chemical stability:
Product is stable under conditions described in Section 7

Conditions to avoid:
Heat above 70°C or incineration; deformation, mutilation, crushing, piercing, and disassembly; short circuit; prolonged exposure to humid conditions.

Incompatibilities materials: Oxidizing agents; acid; base

Hazardous decomposition products:
Carbon monoxide; carbon dioxide; lithium oxide fumes

11. Toxicological information

Signs & symptoms:
None, unless the battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

Inhalation: Lung irritant

Skin contact: Skin irritant

Eye contact: Eye irritant

Ingestion: Tissue damage to throat and gastro-respiratory tract if swallowed

Medical conditions generally aggravated by exposure:
In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

12. Ecological information

When properly used or disposed, the Lithium-Poly batteries do not present environmental hazard.

13. Disposal considerations

Dispose in accordance with applicable regulations which vary from country to country.
(In most countries, the trashing of used batteries is forbidden and the end-users are invited to dispose of them properly, eventually through not-for-profit organizations, mandated by local governments or organized on a voluntary basis by professionals).
Lithium-Poly batteries should have their terminals insulated and be preferably wrapped in plastic bags prior to disposal.

Incineration: Incineration should never be performed by battery users, but by trained professionals in authorized facilities with proper processing of gas and fumes.

Landfilling: According to the proper laws and regulations in different countries or areas, the battery should be buried deeply in the specified place.

Recycling: Send to authorized recycling facilities, eventually through licensed waste carrier.

14. Transport information

UN Number	
IATA:	UN3481
IMDG:	UN3481
Model Regulation:	UN3481
UN Proper shipping name	
IATA:	Lithium ion batteries contained in equipment
IMDG:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Model Regulation:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Environmental hazards	
Marine pollutant:	No
Special precautions for user	Not applicable

Transport information:
According to the Packing Instruction 967 section II of IATA DGR 58th Edition for transportation. According to the special provision 188 of IMDG (37-14) or the <<Recommendations on the Transport of Dangerous Goods-Model Regulations >> (19th).

The products are not subject to dangerous goods

Note: Batteries weight in the package < 5kg (by air, batteries installed in equipment).

Transport Method: By air, by sea, by railway, by road

15. Regulatory information

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

CAS No.	TSCA	IECSC	DSL/NDSL	EINECS/ ELINCS/ NLP
12190-79-3	Listed	Listed	Listed DSL	Listed
7429-90-5	Listed	Listed	Listed DSL	Listed
7782-42-5	Listed	Listed	Listed DSL	Listed
7440-50-8	Listed	Listed	Listed DSL	Listed
623-53-0	Listed	Listed	Listed DSL	Listed

16. 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.
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Abbreviations:

Abbreviations	*Description*
CAS	Chemical Abstracts Service
EC	European Commission
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
TDG	Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations
TSCA	Toxic Substances Control Act of USA
DSL	the Domestic Substances List of Canada
NDSL	the Non-domestic Substances List of Canada