EPSILOR

ELECTRONIC INDUSTRIES LTD

Material Safety Data Sheet (MSDS)

1. Identification of the Product and Supplier

Product:

LITHIUM-ION RECHARGEABLE BATTERY

Trade name and model:	***LITHIUM-ION RECHARGEABLE BATTERY***
Model:	**ELI-2800E**
Cells model:	**VL34570-GEN5**
Battery Wh:	**39 Wh (2 cells)**

Supplier:

EPSILOR ELECTRONIC INDUSTRIES LTD
Temed Science Park
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2. Composition & Information on Ingredients

Component	Material	Formula
Positive Electrode	Lithium Cobalt Oxide	LiCoO2
Negative Electrode	Carbon	C
Electrolyte	Solution of lithium hexafluorophosphate In a mixture of organic solvents** **Ethylene Carbonate - Solvent DiMethyl Carbonate - Solvent	LiPF6

COMPOSITION (typical weight percentages of basic material)

Metals	%	Plastics	%	Others	%
Steel, Copper, Aluminum	31	polypropylene	10	- Lithium cobaltite - Carbon - Organic solvents - Salrs - Lithium metal	29 16 13 1 0

3. Hazards Identification

The rechargeable Lithium-Ion batteries described in this Material Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer and as long as their integrity is maintained.

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.

Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed to the outside, provided 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 containers. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

ELI-2800E batteries are fitted with a safety vent for protection incase of excessive internal pressure and/or temperature

4. First Aid Measures

In case of battery rupture or explosion, evacuate personnel from contaminated area and provide maximum ventilation to clear out fumes/gases.
If it occurs, by accident, seek medical attention and the following measures must be taken:

Inhalation	Not anticipated under normal use. Remove from exposure, Remove to fresh air, rest and keep warm. In severe cases obtain medical attention.
Skin Contact	Not anticipated under normal use. Wash off skin thoroughly with water. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.
Eye Contact	Not anticipated under normal use. Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
Ingestion	Not anticipated under normal use. Wash out mouth thoroughly with water and give plenty of water to drink.
Further Treatment	All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapors should be seen by a doctor.

5. Fire Fighting Measures

Dry chemical type or CO2 extinguishers, Halon, or copious quantities of water or water-based foam can be used to
cool down burning Li-ion cells and batteries. During water application, caution should be exercised as burning pieces
of flammable particles may be ejected from the fire.
Do not re-enter the area until it has been adequately purged of the fire vapour and extinguishing agent.
In case of fire, it is recommended to wear self-contained breathing apparatus, to avoid contact with irritant fumes. Evacuate all persons from immediate area of fire.

Extinguishing Media	Use CO_2 extinguishers or copious quantities of water or water-based foam **Do not use type D extinguishers**

6. Accidental Release Measures
In case of electrolyte leakage from a cell or battery, do not inhale the gas as possible. Remove personnel from area. If the skin has come into contact with the electrolyte it should be washed thoroughly with water. Using protective glasses and gloves, 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.

7. Handling and Storage	
Handling	Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in non conductive (i.e. plastic) trays. Do not disassemble, mutilate or mechanically abuse cells and batteries.
Storage	Store in a cool (preferably below 30°C) and ventilated area, away from moisture, sources of heat, open flames, food and drink. Keep adequate clearance between walls and batteries. Temperature above 70°C may result in battery leakage and rupture. Since short circuit can cause burn, leakage and rupture hazard, keep batteries in original packaging until use and do not jumble them.
Other	Follow Manufacturer's recommendations regarding maximum recommended currents and operating temperature range. Applying pressure on deforming the battery may lead to disassembly followed by eye, skin and throat irritation. Do not immerse in water. Connecting to inappropriate power supplies can result in fire or explosion.

8. Exposure Controls & Personal Protection		
Occupational exposure standard		See section 2
	**Respiratory protection**	In all fire situations, use self-contained breathing apparatus.

	**Hand protection**	In the event of leakage wear gloves.
	**Eye protection**	Safety glasses are recommended In case of leaking or rupture cells.
	**Other**	In the event of leakage wear chemical apron.

9. Physical and Chemical Properties	
Appearance	Small prismatic cylindrical shape hermetically sealed and fitted with an external plastic sleeving.
Odor	Odourless
pH	Not applicable
Flash Point	Not applicable
Flammability	Not applicable
Relative Density	> 2% g/cm^3
Solubility (water)	Not applicable (unless inner components exposed)
Solubility (other)	Not applicable

10. Stability and Reactivity	
Product is stable under conditions described in Section 7.	
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	NA
Hazardous decomposition products	HF, CO, CO_2

11. Toxicological Information	
Signs & symptoms	None, unless 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-fibriotic 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	
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.

13. Disposal Considerations

Do not incinerate, or subject cells to temperatures in excess of 70oC. Such abuse can result in loss of seal, leakage, and/or cell explosion.
The Lithium Ion batteries are classified as non-hazardous waste and are safe for disposal in the normal municipal waste stream. Dispose of in accordance with appropriate local regulations.

14. Transport Information

Label for conveyance	
UN Number	UN3480
Shipping Name	Lithium Ion Battery
Hazard Classification	The battery is not considered to be under hazardous classification.
Packing Instruction	IATA, PI 965 section II.
Documentation	Each consignment must be accompanied with document containing information required for UN 3480 Excepted

15. Regulatory Information

Regulations specifically applicable:
-ACGIH and OSHA
-IATA/ICAO (air transportation) UN 3480 or UN 3481
-IMDG (sea transportation) : UN 3480 or UN 3481
-Transportation within the US-DOT, 49 Code of Federal Regulations

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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