

CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product identifier	LiFePO ₄ rechargeable battery
Models	18650 and 26650 cells 3.2v 1.5 -12.8Ah 4.8 – 41 Wh
Brand	Elubat
Commissioned by	Polynom Ag
Commissioner Address	Stauseestrasse 73, CH-5314, Kleindoettingen, Switzerland
Manufacturer	Sander Elektronik AG
Manufacturer address	Stauseestrasse 73, CH-5314, Kleindoettingen, Switzerland
Factory	Lux Box Lighting Technology Ltd
Factory Address	1 Wymans Way, Fakenham, Norfolk, UK, NR21 8NT
Inspection according to	EEC Directive 93/112/EC
Emergency contact number/email	03300 539 339 / sales@luxbox.co.uk

Chemical composition information

Chemical Composition	Chemical Formula	CAS No.	Weight (%)
Lithium iron phosphate	LiFePO ₄	15365-14-7	26 – 28
Poly (vinylidene fluoride)	[CH ₂ -CF ₂ -] _n	24937-79-9	0.9 – 1.1
Sodium carboxymethyl cellulose	[C ₆ H ₇ O ₂ (OH) ₂ OCH ₂ COONa] _n	9000-11-7	0.15 – 0.25
Styrene butadiene rubber	C ₁₂ H ₁₄	9003-55-8	0.35 – 0.45
Graphite	C	1333-86-4	14 - 15.5
Polypropylene	(C ₃ H ₆) _n	9003-07-0	2 – 3
Lithium hexafluorophosphate	LiPF ₆	21324-40-3	1.4 – 1.7
Dimethyl Carbonated	C ₃ H ₆ O ₃	616-38-6	2.8 – 3.4
Methyl-Ethyl Carbonate	C ₄ H ₈ O ₃	623-53-0	4.5 – 6.5
Ethylene Carbonate	C ₃ H ₄ O ₃	96-46-1	2.3 – 2.7
Copper Foil	Cu	7440-50-8	9.0 – 10.0
Aluminum Foil	Al	7429-90-5	3.9 – 4.4
Iron	Fe	7439-89-6	20 – 24
Lead	Pb	7439-92-1	Not detected
Cadmium	Cd	7440-43-9	Not detected
Mercury	Hg	7439-97-6	Not detected

Physical and chemical properties

Appearance	Square
Reference number	RZUN2018-2097
Odour	If leaking, odour of medical ether
pH	Not applicable as supplied
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

Stability and reactivity

Stability	Product is conditions described in handling and storage specification
Conditions to avoid	Heat above 70° or fire as, deformation, mutilation, crushing, disassembling, overcharging, short-circuit, and exposure to humid condition of a long period
Materials to avoid	Oxidising agents, alkalis, water
Hazardous Decomposition product	Toxic fumes
Hazardous Polymerization	N/A

If battery is leaking, do not use strong oxidizers, mineral acids, strong alkalis or halogenated hydrocarbons

Hazards Identification

Explosive risk	This article does not belong to the explosive risk group
Flammable risk	This article does not belong to the flammable material group
Oxidation risk	This article does not belong to the oxidation of dangerous goods
Toxic risk	This article does not belong to the toxic dangerous goods group
Radioactive risk	This article does not belong to the radiation of dangerous goods
Mordant risk	This article does not belong to the to the corrosion of dangerous goods group

First aid measures

Eyes	Rinse eyes with water for at least 15 minutes, occasionally lifting upper and lower eyelids. Seek medical attention
Skin	Remove contaminated clothing and rinse skin water for 15 minutes. Seek medical attention
Inhalation	Move into fresh air immediately. Use oxygen device if available
Ingestion	Drink at least 2 glasses or water or milk. Inducing vomiting unless unconscious. Seek medical attention

Fire-fighting measures

Flash Point	N/A
Auto-Ignition Temperature	N/A
Extinguishing method	Water, CO ₂
Special fire-fighting procedures	Self-contained breathing apparatus
Unusual Fire an Explosion Hazards	Cell may vent when subjected to excessive heat-exposing battery contents
Hazardous Combustion Products	Carbon monoxide, carbon dioxide, lithium oxide fumes

Accidental release measure

Steps to be taken in the event that material is released or spilled

If the battery material is released, remove all personnel from the area. Allow the battery to cool and the vapour/fumes dissipate. Provide maximum ventilation to clear our hazardous gasses. Avoid skin and eye contact and inhalation of vapours. Wipe contaminated area with a cloth and dispose of it. Remove spilled liquid with absorbent and incinerate.

Handling and storage

Batteries are hermetically sealed, thus should not be opened, destroyed or incinerated as they may leak or rupture releasing their ingredients into the environment.

Do not short circuit terminals, overcharge the battery or discard into fire.

Do no crush, puncture or immerse in liquid.

Avoid mechanical or electrical abuse.

Store in a cool, dry and ventilated area which is subject to small temperature changes.

Storage in high temperature areas should be avoided

Do not place the battery near heating equipment or expose to direct sunlight for prolonged periods.

Do not short or install with incorrect polarity

Exposure control / Personal protection

Respiratory Protection	In case of venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory protection is not necessary under conditions of normal use.
Ventilation	Not necessary under conditions of normal use
Protective gloves	Not necessary under conditions of normal use
Other protective clothing or equipment	Not necessary under conditions of normal use
Personal Protection is recommended for venting batteries	Respiratory protection, protective gloves and clothing and safety face covering

Disposal

Dispose through authorized companies in accordance with local regulations

Toxicological information

Signs and symptoms	None, unless battery ruptures. In the event of exposure to internal contents, vapour fumes may be very irritation to the eyes and skin
Inhalation	Lung irritant
Skin contact	Sin irritant
Eye Contact	Eye irritant
Ingestion	Poisonous if swallowed
Medical conditions generally aggravated by exposure. In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur. May affect organs, nerves, liver and kidneys.	

Ecological information

Mammalian effects	None known at present
Eco-toxicity	None known at present
Bioaccumulation potential	Slowly Bio-degradable
Environmental	No environmental hazards known at present

Transportation information

Label for transport Lithium Battery Mark, Class 9 – Lithium Battery hazard label, Cargo Aircraft labels



Road/Sea labels



UN Number	UN3480 / UN3481
Packaging group	N/A
EmS	F-A, S-I
Marine pollutant	No
Formal Shipping Name	Lithium ion batteries (Including lithium ion polymer batteries)
Hazard classification	The goods are compliant with the requirements of Section IB and II of Packaging Instruction 965 of 59 th DGR Manual of IATA (2018 Edition) and special provision 188 of IMDG CODE (Amdt. 38-16) 2016 edition, including passing of the UN38.3 test

LiFePO₄ Battery CAUTIONARY NOTES

- Store batteries in cool dry place
- Before using a new battery for the first time or after long term storage, fully charge the battery, the correct charger must be used
- Do not short circuit batteries, permanent damage to batteries may result.
- Do not damage or incinerate batteries, they may burst or release toxic material.
- Do not solder directly to cells or pierce the battery
- Do not subject batteries to extremes of temperature, excessive over charging or over discharging
- Avoid batteries being used in an airtight compartment. Ventilation should be provided to the battery compartment (batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source)
- When connecting a battery pack to a charger or device, ensure correct polarity
- If any noise, excessive temperature or leakage from a battery is observed, DO NOT USE
- When the battery is hot, please do not touch it and handle it, until it has cooled
- Do not remove the outer sleeve from a battery pack or cut into its housing
- Unplug a battery by holding the connector itself and not by pulling at its cord
- Do not immerse the battery in water
- Do not charge the battery at temperature below 0°C
- Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated and may result in a fire
- Do not transport or store the battery together with metal objects
- Do not overload the battery.
- In case of accidental fire, dry powder fire extinguishers or sand should be used.
- Keep batteries away from children. If cells or batteries are swallowed, contact a physician at once