

ARTICLE INFORMATION SHEET

This Article Information Sheet (AIS) provides relevant battery information to retailers, consumers, OEMs and other users requesting a GHS-compliant Safety Data Sheet (SDS). Articles, such as batteries, are exempt from GHS SDS classification criteria. The GHS criteria is not designed or intended to be used to classify the physical, health and environmental hazards of an article. Branded consumer batteries are defined as electro-technical devices.

SECTION 1 - DOCUMENT INFORMATION

Product Name: LiFePO₄ Lithium Deep Cycle Battery
Chemical System: Lithium-Ion
Designed for Recharge: Yes
Prepared by: REDARC Electronics Pty Ltd.
Date Prepared: 03/02/2021

SECTION 2 – COMPANY INFORMATION

REDARC Electronics Pty Ltd.
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SECTION 3 – ARTICLE INFORMATION

Description: Lithium-Ion battery
Brand: REDARC
Part Number: LBAT12060, LBAT12100, LBAT12100-HD, LBAT12200

SECTION 4 – ARTICLE CONSTRUCTION

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful. This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non-hazardous ingredients are also possible.

MATERIAL OR INGREDIENT	CAS #	%/wt.
Lithium iron phosphate (LiFePO ₄)	15365-14-7	25% - 30%
Graphite (C)	7782-42-5	8% - 12%
LiPF ₆	21324-40-3	15% - 22%
Aluminium (Al)	7429-90-5	5% - 8%
Copper (Cu)	7440-50-8	10% - 15%
High molecular weight polymer	-	3% - 5%
Nickel (Ni)	7440-02-0	0.5% - 1%
Iron (Fe)	7439-89-6	22% - 30%

SECTION 5 – HEALTH AND SAFETY

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned, or irritated by this product. The number is 13 11 26 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this Article Information Sheet with you when you call.

Inhalation:

Inhalation of materials from a sealed cell is not an expected route of exposure. Vapours or fumes from a ruptured, cracked or damaged battery cell may cause respiratory irritation. Do not breathe vapours or fumes.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. ADVICE TO DOCTOR: Treat symptomatically if the person comes into contact with the corrosive electrolyte liquid contents of a damaged battery. May form hydrofluoric acid if electrolyte comes into contact with water.

Skin Contact:

Contact between the sealed cell and the skin will not cause any harm. Skin contact with the contents of an open battery cell (electrolyte) can cause severe irritation or burns to the skin. Wear protective gloves, protective clothing and eye protection. Wash skin thoroughly after handling.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). Wash contaminated clothing before reuse.

Eye Contact:

Contact between the battery cell and the eye will not cause any harm. Eye contact with the contents of an open battery cell (electrolyte) can cause severe irritation or burns to the eye. Wear eye protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Ingestion:

Ingestion of a sealed battery cell is not an expected route of exposure. The ingestion of the battery contents (electrolyte) can cause serious chemical burns to the mouth, oesophagus, and gastrointestinal tract.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting.

SECTION 6 – FIRE HAZARD & FIREFIGHTING

Unusual Fire and Explosion Hazards:

Battery may explode or leak potentially hazardous vapours when exposed to excessive heat (above the maximum rated temperature) or catch fire if over-charged, short circuited, punctured or crushed.

Hazardous Combustion Products:

Fire, excessive heat, or over voltage conditions may produce hazardous decomposition products. Damaged batteries can result in rapid heating and the release of flammable vapours. In case of fire, the formation of the following gases cannot be excluded: Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

Extinguishing Media:

Dry chemical type extinguishers are the most effective means to extinguish a battery fire. A CO₂ extinguisher will also work effectively.

Fire Fighting Procedures:

Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire. Full protective clothing is necessary. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

SECTION 7 – HANDLING AND STORAGE

Handling:

- Batteries are designed to be recharged. However, improperly charging a battery may cause the battery to flame. When charging the battery, use dedicated chargers and follow the specified conditions.
- Never disassemble or modify a battery.
- Do not immerse or throw a battery in water.
- Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid the inhalation of any vapours that may be emitted.
- Short circuit causes heating. In addition, short circuit reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with a short-circuited battery can cause skin burns.
- Avoid reversing the battery polarity, which can cause the battery to be damaged or flame.

In the event of skin or eye exposure to the electrolyte, refer to **Section 5, Health and Safety**.

Storage:

Batteries should be separated from other materials and stored in a non-combustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.

Batteries should be stored between -20°C and 40°C. Batteries should not be stored above 60°C and never above 70°C.

Temperature Range [°C]	Effect on Batteries
0 to 25	Recommended - Ideal for battery chemistry
-20 to 40	Appropriate - Safe storage
40 to 60	Temporary reduction in capacity, will return once battery is below 40°C.
60+	Accelerated loss of charge capacity. Safety risk increases with time exposure and temperature increases above 60°C

Charge batteries to a State of Charge (SoC) between 50-70% if batteries are to be put into storage for several months. This is to ensure SoC does not drop below 10%, which would cause permanent damage to the batteries.

SECTION 8 – DISPOSAL CONSIDERATIONS

Recycling of batteries is strongly encouraged. Contact local waste management contractors for local recycling options. Alternatively, dispose of in accordance with applicable local regulations.

- The battery packs internal cell contents should not be released into the environment; Do not dump into any sewers, on the ground or into any body of water.
- Do not dispose of battery packs in fire.
- Used battery packs should be stored in their original packaging.
- Ensure battery packs are stored in a manner to prevent short circuit of the cells.
- Battery pack should be fully discharged before recycling.
- Do not break battery pack open before disposal.

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SECTION 9 – TRANSPORT INFORMATION

Transport of Lithium-Ion batteries shall occur with a maximum State of Charge (SOC) of 30% (according to IATA Packaging instruction PI965 Section IA) and shall not be transported on passenger aircraft (Cargo Only).

The transport of rechargeable lithium-ion batteries regulated by the United Nations as detailed in the “Model Regulations on the transport of Dangerous Goods Ref. ST/SG/ AC.10/1 Revision 20 2017”.

Lithium-ion batteries are classified as a **Dangerous Goods** according to the criteria of the Australian Dangerous Goods (ADG) Code.

Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of LITHIUM-ION BATTERIES. Refer to relevant transportation documents for full set of requirements.



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG)	AIR TRANSPORT (IATA)
UN Number	3480	3480	3480
Proper Shipping Name	LITHIUM-ION BATTERIES	LITHIUM-ION BATTERIES	LITHIUM-ION BATTERIES
Transport Hazard Class	9	9	9
Packing Group	II	II	II

SECTION 10 – REGULATORY INFORMATION

The batteries have been tested to and are compliant with the following regulations:

- UN 38.3: “Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Ref. ST/SG/AC.10/11 Rev.6/Amend.1 2017, Section 38.3”.
- EMC: Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017 made under section 182 of the Radiocommunications Act 1992

Lithium and lithium-ion cells and batteries are regulated in the U.S. in accordance with Part 49 of the Code of Federal Regulations, (49 CFR Sections 105-180) of the U.S. Hazardous Materials Regulations.

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