SAFETY DATA SHEET

1.0 Chemical Product and Company Identification

1.1 Product identifiers

Product brand name and number	Xantrex 105Ah 12V Battery (Product number: 883-0105-12) Xantrex 125Ah 12V Battery (Product number: 883-0125-12) Xantrex 240Ah 12V Battery (Product number: 883-0240-12) Xantrex 320Ah 12V Battery (Product number: 883-0320-12)
Product type	Rechargeable lithium ion battery pack, $LiFePO_4$
Also known as	Xantrex Battery Xantrex Li-ion battery pack e-GEN battery

1.2 Relevant identified uses

Recommended applications	auxiliary energy storage for recreational vehicles

1.3 Supplier Details

Manufacturer	Xantrex LLC
Address	541 Roske Drive, Suite A Elkhart, Indiana USA 46516
Contact Information	Toll Free: 1-800-670-0707 Fax: 574-975-2720 Website: http://www.xantrex.com/contacts/
Emergency Contact	PERS Emergency Response Service CALL: 1-800-633-8253 (USA/Canada), 1-801-629-0667 (International) - Reference Account Number: 12202

2.0 Hazards Identification

Not dangerous with normal use.

Do not dismantle, open or shred battery. Exposure to the ingredients contained within or their ingredients could be harmful.

The Lithium Ion battery is considered, for transportation purposes, Dangerous Goods and shall be transported according to methods of transport identified in *"Transport Information" on page 8*.

The following placard must be placed visibly in proportion to crate size but must be no less than 120x110mm.	
The additional following placard must also be placed visibly in proportion to crate size but must be no less than 120x110mm.	
When a battery is shipped individually, the package box must be applied with the label on the right and marked within the black square the following information. a. "**Lithium-ion batteries: UN 3480 / PI 965 / Section IA / IMP:RBI**" b. "**Complies with UN 38.3 Test Requirements**" c. "**Net Equivalent Lithium Ion Content: For Xantrex 105Ah 12V Battery - 126 g (0.28 lbs), for Xantrex 125Ah 12V Battery - 150 g (0.33 lbs), for Xantrex 240Ah 12V Battery - 288 g (0.64 lbs), for Xantrex 320Ah 12V Battery - 384 g (0.85 lbs)**" d. "**For PERS Emergency Response Service: Call 1-800-633-8253 (USA/Canada), 1-801-629-0667 (International) - Reference Account Number: 12202**"	

2.1 Primary routes of exposure

These chemicals are contained in a sealed can, inside a sealed container (battery case). Risk of exposure only occurs if the battery is mechanically, thermally and/or electrically abused. If this occurs, exposure to the electrolyte solution contained within the battery case can occur by inhalation, ingestion, skin and eye contact.

2.2 Potential Health Effects

Eye	Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.
Skin	Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.
Inhalation	Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.
Ingestion	Swallowing of materials from a sealed battery is not an expected route of exposure. However, swallowing the contents of an open battery case can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.
Other hazards	No information available

3.0 Composition/Information on Ingredients

The rechargeable lithium ion battery is a mixture of the following:

Chemical Name	Composition (in % by weight)	CAS Number
Lithium Iron Phosphate ($LiFePO_4$)	27.04	15365-14-7
Iron (Fe)	23.52	7439-89-6
Organic solvents	13.44	N/A
Graphite(C)	12.78	7782-42-5
Copper (Cu)	9.22	7440-50-8
Aluminum (Al)	6.44	7429-90-5
Polypropylene	4.37	9002-88-4
Lithium hexafluorophosphate (LiF_6P)	2.01	21324-40-3
Nickel (Ni)	1.18	14332-32-2

4.0 First Aid Measures

4.1 Description of first aid measures

Eye	• Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. • Get medical aid.
Skin	• Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. • Get medical aid.
Inhalation	• Remove from exposure and move to fresh air immediately. • Use oxygen if available.
Ingestion	• Give at least 2 glasses of milk or water. • Call the Poison Control Center at 1-800-222-1222 (or your local poison control center) for further instructions. Induce vomiting only when instructed to do so. • Call a physician.

5.0 Fire Fighting Measures

Flash Point	N/A
Suitable extinguishing agents	Use extinguishing agent suitable for local conditions and the surrounding environment .Such as dry powder (Class ABC Type), CO_2. Water is not recommended (after installation) as electricity is involved and would present a shock hazard.
Special hazards arising from the substance or mixture	Battery may burst and release hazardous decomposition products when exposed to a fire situation.
Advice for firefighters **Protective equipment**	Wear self-contained breathing apparatus. Wear fully protective impervious suit.

6.0 Accidental Release Measures

6.1 Steps to be taken in case material is released or spilled

If the battery material is released,

- Remove personnel from area until fumes dissipate.
- Provide maximum ventilation to clear out hazardous gases.
- Sweep up using a method that does not generate dust.
- Collect as much of the spilled material as possible and place the spilled material into a suitable disposal container.

The preferred response is to leave the area and allow the batteries to cool and vapors to dissipate. Avoid skin and eye contact or inhalation of vapors.

6.2 Waste Disposal Method

- It is recommended to discharge the battery to the end, handing in the abandoned batteries to local, state, and federal departments.
- Do not discard with general waste.
- Dispose of the batteries in accordance with approved local, state, and federal requirements.
- Consult state environmental protection agency and/or federal EPA.

7.0 Handling and Storage

- The batteries should not be opened, destroyed or incinerated, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
- Do not short circuit terminals, or over charge the battery, forced over-discharge, throw in a fire.
- Do not crush or puncture the battery, or immerse in liquids.
- Always handle and store the battery in an upright orientation.
- If transporting, ensure that the State-of-Charge (SoC) is less than the maximum of 30% SoC and comply with all Class 9 dangerous goods transport requirements for lithium ion batteries.

7.1 Precautions to be taken in handling and storing

- Avoid mechanical or electrical abuse.
- Storage preferably in cool, dry and ventilated area, which is subject to little temperature change.
- Storage at high temperatures should be avoided.
- Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.
- The battery is heavy. Always use proper lifting techniques when handling the battery.

7.2 Other Precautions

- Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures.
- Do not short battery terminals or install with incorrect polarity.

8.0 Exposure Controls and Personal Protection

8.1 Engineering Controls

- Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor.
- Keep away from heat and open flame.
- Store in a cool, dry place.

8.2 Personal Protective Equipment

Eye Protection	Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.
Skin and body Protection	Not necessary under normal conditions. For general safety, • Wear neoprene or nitrile rubber gloves if handling an open or leaking battery. • Do not wear metallic items such as watches or bracelets when working on the battery. • Use insulated tools to prevent accidental short circuit.
Hand protection	Wear neoprene or natural rubber material gloves if handling an open or leaking battery.
Respiratory Protection	Not necessary under normal conditions. In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries.
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area. If lifting, wear steel-toed work boots.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

9.0 Physical and Chemical Properties

Nominal Voltage	12.8V
Rated Capacity	320Ah (4096Wh) Xantrex 320Ah 12V Battery 240Ah (3072Wh) Xantrex 240Ah 12V Battery 125Ah (1600Wh) Xantrex 125Ah 12V Battery 105Ah (1344Wh) Xantrex 105Ah 12V Battery
Chemical Uses	Chemical power source
Appearance Characters	Prismatic
Upper/lower flammability or explosive limit	Not available
Odor	Odorless under normal circumstances. If leaking, smells like medical ether.
Odor threshold	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not applicable
pH	Not applicable
Solubility(ies)	Not applicable, unless individual components exposed.
Melting point/freezing point	Not applicable
Initial boiling point and boiling range	Not applicable
Evaporation rate	Not applicable
Partition coefficient: n-octanol/water	Not applicable
Flash point	Not applicable
Flammability (solid, gas)	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable

10.0 Stability and Reactivity

This section describes the reactivity hazards of the chemical and the chemical stability information.

Reactivity	If leaked, it is forbidden to make contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.
Chemical stability	The product is stable under normal conditions
Conditions to Avoid	Flames, sparks, and other sources of ignition, incompatible materials, and heat sources above 70 °C. Electrical and mechanical abuse including deforming, mutilating, crushing, disassembling, overcharging, short-circuiting, and exposing the battery to long periods of high humidity.
Incompatibilities	Oxidizing agents, acid, base
Hazardous Combustible Products	Carbon monoxide, carbon dioxide, lithium oxide fumes
Hazardous Decomposition Products	Toxic fumes and peroxides
Hazardous Polymerization	Not applicable
Possibility of hazardous reactions	Data not available

11.0 Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened.

- Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes.
- Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

12.0 Ecological Information

When promptly used or disposed, the battery does not present an environmental hazard. There are no known mammalian effects. When disposed, keep away from sunlight, water, rain, and snow. Its bio-accumulation potential is that it is slowly bio-degradable.

13.0 Disposal Considerations

- Do not discard with general waste.
- Batteries must be completely discharged prior to disposal. If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of uncreated, or unconsumed lithium remaining in the spent battery.
- The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in an authorized facility, through a licensed waste carrier.
- See *Waste Disposal Method on page 4*.

14.0 Transport Information

The LITHIUM IRON PHOSPHATE BATTERY ($LiFePO_4$) will comply with UN38.3, according to PACKING INSTRUCTION 965 of IATA DGR 62nd Edition (2021) for transportation.

14.1 Transport Fashion

Electric energy is greater than 100 Wh. Therefore, the watt-hour exceeds the standard, and considered Dangerous Goods Cargo only.

- By air is PERMITTED. See below (IATA).
- By sea is PERMITTED. See below (Maritime).
- By railway is PERMITTED
- By road is PERMITTED

IATA Proper Shipping Name	Lithium ion batteries+(including lithium polymer batteries)	**Maritime Transport IMDG**	Lithium ion batteries+(including lithium polymer batteries)
Hazard Class	9	**IMDG Class**	9
Identification Number	UN3480	**UN Number**	UN3480
Packaging group	PI 965, Section IA, IMP: RBI	**Packaging group**	PI 965, Section IA, IMP: RBI
Other hazards	Pax A/C = FORBIDDEN CAO < 35 kg SoC < 30%	**Other hazards**	SoC < 30%

More information concerning shipping, testing, marking and packaging can be obtained from Labelmaster at http://www.labelmaster.com.

- Separate Li-ion batteries when shipping to prevent short-circuiting.
- They should be packed in strong packaging for support during transport.
- In the case of transportation, confirm no leakage and no overspill from a container. Transport cargo ithout falling, dropping and breakage.
- Prevent collapse of cargo piles and wet by rain. The container must be handled carefully.
- Do not give shocks that result in a mark of hitting on a cell. Please refer to *"Handling and Storage" on page 5*.

15.0 Regulatory Information

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

Composition	CAS#	IECSC	DSL	TSCA	EC#	EINECS
LiF_6P	21324-40-3	Listed	Listed	Listed	244-334-7	Listed
Graphite	7782-42-5	Listed	Listed	Listed	231-955-3	Listed
Aluminum	7429-90-5	Listed	Listed	Listed	231-072-3	Listed
Copper	7440-50-8	Listed	Listed	Listed	231-159-6	Listed

16.0 Additional Information

This Safety Data Sheet (SDS) complies with the requirements of the USA Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)) and European Union (EU) Regulation (EC) No. 1907/2006.

16.1 Revision summary

Date of Revision	Description
9-Apr-2021	Draft of document.
20-Apr-2021	Final draft document (approved internally)

16.2 Term and definitions

Term or Abbreviation or Acronym	Definition
EC	European Commission as it relates to EC-safety data sheet which is the central instrument for communicating safety-related information for substances and mixtures in the supply chain.
CAS	Chemical Abstracts Service, as in CAS Registry Number or CAS Number
CO_2	Carbon Dioxide
DSL	Domestic Substance List
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Environmental Protection Agency, a United States Federal Agency
IATA DGR	International Air Transport Association Dangerous Goods Regulation
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Dangerous Goods
LiF_6P	Lithium HexaFluoroPhosphate
$LiFePO_4$	Lithium Iron Phosphate
SDS	Safety Data Sheet
TSCA	The Substances Control Act of 1976 authorizes the EPA to track the 75,000 industrial chemicals currently produced or imported into the U.S.
Calif. Prop. 65	California Proposition 65 Harmful Substances

16.3 Disclaimer

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make their own determination of the suitability of the material for their particular purpose.