

# Product Safety Data Sheet



Name of Product: Greentek Graphene-LFP Li-ion Battery

## 1. Product Identification

Type/Model	GRE-U-P4880-1
Rating	51.2Vdc, 80Ah, 4096Wh
Manufacturer/Certificate Holder	Techplus Control System Pty Ltd
Address	3/6 Garden Road, Clayton, VIC 3168, Australia
Telephone	+61 3 8522 8233
Email	info@techplussolutions.com.au
Webpage	www.techplussolutions.com.au

## 2. Hazards Identification

Explosive risk	This article does not belong to the explosive dangerous goods
Flammable risk	This article does not belong to the flammable material
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
Radioactive risk	This article does not belong to the radiation of dangerous goods
Mordant risk	This article does not belong to the corrosion of dangerous goods
other risk	This article is a Li-ion Battery Pack with a Watt-hour rate of 4096Wh, which belongs to the Class 9 of dangerous goods

## 3. Composition Information

Chemical Composition	Chemical Formula	Weight (%)	CAS Number
Lithium Iron Phosphate	LiFePO <sub>4</sub>	28.8	15365-14-7
Ethene, 1,1- difluoro-homopolymer	C <sub>2</sub> H <sub>2</sub> F <sub>2</sub>	0.9	24937-79-9
Aluminum	Al	16.4	7429-90-5
Copper	Cu	12.2	7440-50-8
Graphite	C	13.2	7782-42-5
Graphene	C	1.8	1034343-98-0
Lithium Hexafluorophosphate	LiPF <sub>6</sub>	2.7	21324-40-3
Ethylene Carbonate	(CH <sub>2</sub> O) <sub>2</sub> CO /C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	8	96-49-1
Ethyl methyl carbonate	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>	8.4	623-53-0
Propylene carbonate	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	1.3	108-32-7
Other	-	6.3	-

# Product Safety Data Sheet



## 4. First Aid Measures

### **Eye**

If exposed to any of the chemicals, flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

### **Skin**

If exposed, 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. Induce vomiting unless patient is unconscious. Call a physician.

## 5. Fire-fighting Measures

**Flash Point:** N/A.

**Auto-Ignition Temperature:** N/A.

**Extinguishing Media:** Water, CO<sub>2</sub>.

**Special Fire-Fighting Procedures:** Self-contained breathing apparatus.

**Unusual Fire and Explosion Hazards:** Cell may vent when subjected to excessive heat-exposing battery contents.

**Hazardous Combustion Products:** Carbon monoxide, carbon dioxide, lithium oxide fumes.

## 6. Accidental Release Measures

### **Steps to be taken in case the material is released or spilled:**

- Remove personnel from area until fumes dissipate.
- Provide maximum ventilation to clear out hazardous gases.
- Wipe it up with a cloth and dispose it of in a plastic bag and put into a steel can.
- The preferred response is to leave the area and allow the battery to cool and vapors to dissipate.
- Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.
- Remove spilled liquid with absorbent and incinerate.

**Waste disposal method:** It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery. If disposal of the battery is considered, follow appropriate disposal procedures described in Section 13.

# Product Safety Data Sheet



## 7. Handling and Storage

- The battery should **not be opened, destroyed or incinerate**, 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 overcharge the battery, or throw to fire.**
- **Do not crush or puncture the battery or immerse in liquids.**

### 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.

### Other Precautions

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

## 8. Exposure Controls/Personal Protection

### Respiratory Protection

In case of battery 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 battery

Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

## 9. Physical and Chemical Properties

**Appearance:** Prismatic shape

**Odour:** If leaking, smells of medical ether

**Odor threshold:** Not applicable

**pH:** Not applicable

**Melting point/freezing point:** Not applicable

**Initial boiling point and Boiling range:** Not applicable

**Flash point:** Not applicable

**Evaporation rate:** Not applicable

**Flammability (solid, gas):** Not applicable

# Product Safety Data Sheet



**Upper/lower flammability or explosive limits:** Not applicable  
**Vapor pressure:** Not applicable  
**Vapor density:** Not applicable  
**Relative density:** Not applicable  
**Solubility (water):** Not applicable  
**Solubility (other):** Not applicable  
**n-octanol/water partition coefficient:** Not applicable  
**Auto-ignition temperature:** Not applicable  
**Decomposition temperature:** Not applicable

## 10. Stability and Reactivity

**Stability:** Product is stable under normal conditions.  
**Conditions to avoid:** Heat above 70°C or incinerate, deform, mutilate, crush, disassemble, overcharge, short-circuit, and expose over a long period to humid conditions.  
**Materials to avoid:** Oxidising agents, alkalis, and water.  
**Hazardous Decomposition Products:** Toxic fumes and may form peroxides.  
**Hazardous Polymerisation:** N/A.  
  
**If leaked,** do not contact with strong oxidisers, mineral acids, strong alkalis and halogenated hydrocarbons.

## 11. Toxicological Information

**Signs & symptoms:** None unless battery ruptures.  
In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.  
**Skin contact:** Skin irritant  
**Eye contact:** Eye irritant  
**Ingestion:** Poisoning 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; target organs nerves, liver and kidneys.

## 12. Ecological Information

**Mammalian effects:** None known at present.  
**Eco-toxicity:** None known at present.  
**Bioaccumulation potential:** Slowly Bio-degradable.  
**Environmental fate:** None known environmental hazards at present

# Product Safety Data Sheet



## 13. Disposal Consideration

Do not treat deserted batteries as ordinary Trash. Do not dissect, pierce, crush or treat similarly. Do not incinerate, or subject cells to temperature more than 70°C, such abuse can result in loss of seal leakage, and/or cell explosion. Recycle or dispose of in accordance with government, state & local regulations.

## 14. Transport Information

**Label for conveyance:** the Class 9—Lithium Battery hazard label

**UN Number:** UN3480

**Group II Packing Group:** Group II.

**EmS No:** F-A, S-I

**Marine pollutant:** No.

**Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises:** No further information.

**UN Proper Shipping Name:** 1) Lithium-ion batteries; 2) Lithium-ion batteries packed with equipment; 3) Lithium-ion batteries contained in equipment.

**Transport hazard class(es):** The goods shall be complied with the requirements of Section IA of Packing Instructions 965 of 63rd DGR Manual of IATA (2022 Edition) and IMDG CODE (Amdt. 40-20) 2020 Edition, including the passing of the UN38.3 test.

## 15. Regulatory Information

In accordance with all Federal, State and local laws

- Dangerous Goods Regulations
- Recommendations on the Transport of Dangerous Goods-Model Regulations (20th revised edition)
- Recommendations on the Transport of Dangerous Goods-Manual of Tests and Criteria International Air Transport Association (IATA)
- International Maritime Dangerous Goods (IMDG Code 2018 Edition Amdt 39-18)
- Technical Instructions for the Safe Transport of Dangerous Goods
- Classification and code of dangerous goods (GB 6944-2012)
- 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
- Toxic Substance Control Act (TSCA)
- Code of Federal Regulations

## 16. Other Information



This document is only effective to the batteries (GRE-U-P4880-1) owned by Techplus Control System Pty LTD. To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Users should read this document carefully and use the batteries in correct method. Techplus Control System Pty LTD or any of its subsidiary doesn't assume responsibility for any damage or loss because of misuse of batteries.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export-controlled information.