

广州海关技术中心

GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

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No: 01052100002314-5(E)

Date: 2021-05-23

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MSDS Report

Sample Name: ENCHARGE-3T-1P-INT

Applicant: Enphase Energy Inc



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Material Safety Data Sheet

Section 1 –IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING

Product Name	ENCHARGE-3T-1P-INT
Battery Model	B03-T01-INT00-1-2
Battery Voltage	67.2V
Manufacturer	Shenzhen Sunwinon Electronics Co Ltd
Address	Floor 1-6 of 4#, Building of 101, No. 6-6, Yanchuan Community, Yanluo street, Bao'an District 518105 Guangdong, Shenzhen China
TEL	0064-3-3455300or0755-36887608
Emergency Telephone	0064-3-3455300or0755-36887608

Section 2 –COMPOSITION / INFORMATION ON INGREDIENTS

The Enphase AC Battery consists of an 21-cell lithium iron phosphate battery, battery management unit (BMU), microinverter, miscellaneous electronics and protective case.		
Product name ENCHARGE-3T-1P-INT Hazardous components		
CAS No.	Chemical Fomular	Concentration Range in Electrolyte (w/w%)
21324-40-3	Lithium Hexfluorophosphate	10-20
90076-65-6	Lithium bis- trifluoromethanesulfonoimide	1-5

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1313-99-1	Ethylene Carbonate	80-90
108-32-7	Diethyl Carbonate	
105-58-8	Dimethyl Carbonate	
616-38-6	Ethyl methyl carbonate	
623-53-0	1,3 - Propanesultone	
1120-71-4	Aluminium and inert materials	

Full text of relevant R phrases can be found in Section 15.

Further Information

For information purposes:

(*) Main ingredients: Lithium hexafluorophosphate, organic carbonates.

Mercury content: Hg < 0.1mg/kg

Cadmium content: Cd < 1mg/kg

Lead content: Pb < 10mg/kg

Section 3 –HAZARDS IDENTIFICATION

Classification	Carcinogenic Category 3R40, Xn , sensitizing R43
Most important hazards	Limited evidence of a carcinogenic effect. Possible risks of irreversible effects. May cause sensitization by skin contact.
Further information	The Lithium-Ion is a sealed battery which is not hazardous when used according to recommendations. Under normal conditions of use, the integrity of the battery casing and security vent are maintained, the ingredients are not expected to pose a significant risk to man or the environment. The classification above is based on the contents being considered as a preparation in accordance with Directive 1999/45/EC.

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Section 4 –FIRST AID MEASURES

General advice	Show this safety data sheet to the doctor in attendance.
<i>The information below refers to exposure to the ingredients.</i> Inhalation	Immediate medical attention is required. Move to fresh air. If symptoms persist, call a physician.
Skin Contact	Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. If skin irritation persists, call a physician.
Eye Contact	Immediate medical attention is required. Remove contact lenses. Rinse immediately with plenty of water for at least 15 minutes.
Ingestion	Immediate medical attention is required. Gently wipe or rinse the inside of the mouth with water. Give small amounts of water to drink. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Centre immediately.

Section 5–FIRE-FIGHTING MEASURES

Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (> 150 °C (302 °F)), when damaged or abused (e.g., mechanical damage or electrical overcharge).

Burning cells can ignite other batteries in close proximity.

Suitable extinguishing media

Foam dry powder, carbon dioxide (CO₂), sand.

Extinguishing media which must not be used for safety reasons

Water, water spray

Specific hazards

Risk of receptacle bursting.

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Special protective equipment for firefighters

In the event of fire, wear self contained breathing apparatus. Wear personal protective equipment.

Hazardous decomposition products

Lithium compounds, carbon oxides, hydrogen fluoride

Section 6 –ACCIDENTAL RELEASE MEASURES

The information below refers to exposure to the ingredients.

Personal precautions

Use personal protective equipment. Avoid contact with skin and eyes.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

Do not allow material to contaminate ground water system.

To avoid risks to man and the environment, comply with the instructions for use.

Methods for cleaning up

Pick up and transfer to properly labelled containers.

Dispose of in accordance with local regulations.

Section 7 –HANDLING AND STORAGE

Handling

Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods, which would end up into excessive heating.

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.

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Other

Follow Manufacturers 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.

The Li-ion cells and batteries are not designed to be recharged from external power sources besides specific Li-ion charger models approved by Enphase Energy.

Connecting to inappropriate power supplies can result in fire or explosion.

Section 8 –EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Airborne exposure to hazardous substances in the electrolyte is not expected when the cells or batteries are used for their intended purposes.

United States Occupational Exposure Limits:

Lithium Hexafluorophosphate (as fluoride)

USA, OSHA PEL: 2.5 mg/m3 (TWA)

USA, ACGIH TVL: 2.5 mg/m3 (TWA)

USA, ACGIH BEI: 2 mg/L (urine – prior to shift), 3 mg/L (urine –end of shift)

No published exposure limits for the remaining electrolyte components.

European Union Occupational Exposure Limits

Country	Limit Value – Eight Hour		Limit Value – Short Term	
	ppm	mg/m3	ppm	mg/m3
	Lithium Hexafluorophosphate (as fluoride)			
Austria	None	2.5	None	12.5 (30 minutes)
Belgium	None	2.5	None	None
Denmark	None	2.5	None	5
European Union	None	None	None	None
France	None	2.5	None	None
Germany	None	1.0	None	4 (15 minutes)
Hungary	None	2.5	None	10
Italy	None	None	None	None

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Poland	None	2.0	None	None
Spain	None	2.5	None	None
Sweden	None	1.0	None	None
Switzerland	None	1.0	None	4 (15 minutes)
The Netherlands	None	None	None	2 (15 minutes)

No published Occupational Exposure Limits for the remaining electrolyte components

Exposure Controls

Routine Handling:

The ACB has a lithium ion battery contains organic electrolyte that is sealed in a protective case. There is no risk of exposure during routine handling. Risk of exposure occurs only if

the ACB is mechanically, thermally, or electrically abused to the point of compromising the enclosure.

Do not eat, drink or smoke in work areas. Avoid storing food, drink or tobacco near the product. Practice and maintain good housekeeping.

Remove jewelry items such as rings, wristwatches, pendants, etc., that could come in contact with the battery terminals if the terminals are exposed to avoid short circuiting.

Personal Protective Equipment:

The following personal protective equipment should be worn if the ACB is mechanically, thermally, or electrically abused to the point where the protective case is damaged and there is a risk of exposure to the electrolyte.

Skin/body protection: Wear closed toe shoes, chemical resistant overalls, protective overboots

Gloves: 15 mm nitrile rubber gloves. Immersion protection provided when nitrile gloves worn over laminated film barrier gloves (Ansell Barrier 2-100 or equivalent).

Eye/Face protection: Take steps to prevent exposure to eyes and face including chemical splash goggles and face shield.

Respiratory protection: Wear a full face respirator with an Organic Vapor/Acid Gas/Particulate filter (3M Model No. 60923 or equivalent).

Engineering Controls

See Section 6 for accidental release response measures.

See Section 7 handling and storage measures.

Ventilate the immediate area around a leaking the cell or battery.

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Section 9 –PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Property	ACB	Electrolyte
Physical State	Solid	No data available
Color	No data available	No data available
Odor	Odorless	No data available
Melting point/freezing point	No data available	No data available
Boiling point	No data available	No data available
Flammability	No data available	No data available
Lower/upper explosion limit	Not applicable (solid)	No data available
Flash point	Not applicable (solid)	No data available
Evaporation Rate	Not applicable (solid)	No data available
Auto-ignition temperature	Not applicable (solid)	No data available
Decomposition Temperature	90°C	No data available
pH	Not applicable	No data available
Kinematic Viscosity	Not applicable (solid)	No data available
Solubility	Insoluble	No data available
Partition Coefficient n- Octanol/water	Not applicable	No data available
Vapor Pressure	No data available	No data available
Density	Not available	No data available
Relative Vapor Density	Not applicable (solid)	No data available
Particle characteristics	No data available	No data available
Explosive Properties	No data available	No data available
Oxidizing Properties	No data available	No data available

Section 10 –STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical Stability

The ACBs are stable under normal use and in normal storage conditions.

No data available.

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Possibility of Hazardous Reactions

Fire may occur if the battery is physical damaged or exposed to high temperature conditions.

Do not expose cell to temperatures outside the range of -40°C to 80°C.

Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse or electrical shorts.

Conditions to Avoid

See Section 7.

Incompatible materials

No data available.

Hazardous decomposition products

Hydrofluoric acid and carbon monoxide may be released in the event that a cell/battery is physically damaged to the point where the case is compromised and electrolyte is released.

Section 11 –TOXICOLOGICAL INFORMATION

The information below refers to exposure to the ingredients.

1.Likely Routes of Exposure

The ACB has a lithium ion cell that contains organic electrolyte that is sealed in a protective case. Risk of exposure occurs only if the cell is mechanically, thermally, or electrically abused to the point of compromising the protective case. The following toxicological information only applies in the event that electrolyte leaks from the battery due to physical damage and an individual comes in contact with the electrolyte. No toxicological data is available regarding the electrolyte and the. following information is provided for the electrolyte components.

2.Acute Toxicity

Electrolyte:

Oral: Lithium hexafluorophosphate is classified as acute toxic-oral (Category 3 (H301)). Ethylene carbonate and 1,3-propanesultone are classified as acute toxic-oral (Category 4 (H302)). No oral toxicity data available for the electrolyte. The electrolyte is presumed to be acutely toxic – oral in accordance with GHS mixture rules.

Inhalation: No data available

Dermal/Eye: 1,3-propanesultone is classified as acute toxic-dermal (Category 4 (H312)). The electrolyte is not acutely toxic – dermal in accordance with GHS mixture rules.

3.Skin Corrosion/Irritation

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Electrolyte: Individual components of the electrolyte cause skin corrosion/irritation and serious eye damage/irritation. Lithium hexafluorophosphate is classified as causing severe skin burns (Category 1 (H314)). Diethyl carbonate, ethyl methyl carbonate and propylene carbonate are classified as causing skin irritation (Category 2 (H315)). No data is available for the electrolyte and it is presumed to cause skin corrosion/irritation per GHS mixture rules.

4.Serious Eye Damage/Irritation

Electrolyte: Individual components of the electrolyte cause serious eye damage/irritation. Lithium hexafluorophosphate is classified as causing severe damage burns (Category 1 (H318)). Ethylene carbonate, dimethyl carbonate, ethyl methyl carbonate propylene carbonate and 1,3-propanesultone are classified as causing serious eye irritation (Category 2 (H319)). No data is available for the electrolyte and it is presumed to cause serious eye damage/irritation per GHS mixture rules.

5.Respiratory or Skin Sensitization

Electrolyte: No available data. No ingredients of the electrolyte are identified as causing respiratory or skin sensitization.

6.Germ cell Mutagenicity

Electrolyte: No available data. No ingredients of the electrolyte are identified as causing germ cell mutagenicity.

7.Carcinogenicity

Electrolyte: 1,3-Propanesultone is identified as may cause (Category 1A/!B – H350). No data is available for the electrolyte.

8.Reproductive Toxicity

Electrolyte: No data available. No ingredients of the electrolyte are identified as having reproductive toxicity.

9.Specific Target Organ Toxicity – Single Exposure

Electrolyte: Diethyl carbonate, ethyl methyl carbonate and propylene carbonate are identified as causing lung irritation with a single exposure (Category 3 – H335). No data is available for the electrolyte and it is presumed to cause specific target organ toxicity damage (respiratory) with repeated exposure per GHS mixture rules.

10.Specific Target Organ Toxicity – Repeated Exposure

Electrolyte: Individual components of the electrolyte cause specific target organ toxicity damage with repeated exposure. Lithium hexafluorophosphate is identified as causing damage to bones and teeth (Category 1 (H372)). Ethylene carbonate is classified as causing damage to the kidneys (Category 2 (H373)). No data is available for the electrolyte and it is presumed to cause specific target organ toxicity damage with repeated exposure per GHS mixture rules.

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11. Aspiration Hazards

Electrolyte: No data available.

12. Symptoms Related to Physical, Chemical and Toxicological Characteristics

Available information pertaining to the physical, chemical and toxicological characteristics of the electrolyte is presented for each hazard class (Section 11.2 – 11.11).

13. Delayed and Immediate Effects and Chronic Effects from Short and Long Term Exposure

Available information pertaining to the physical, chemical and toxicological characteristics of the electrolyte is presented for each hazard class (Section 11.2 – 11.11).

Section 12 – ECOLOGICAL INFORMATION

1 Toxicity

No data available.

2 Persistence and Degradability

No data available.

3 Bioaccumulative Potential

No data available.

4 Mobility in Soil

No data available.

5 Results of PBT and VPvB Assessment

Not applicable

6 Other Adverse Effects

Solid cells released into the natural environment will slowly degrade and may release harmful or toxic substances. Cells are not intended to be released into water or on land but should be disposed or recycled according to local regulations.

Section 13 – DISPOSAL CONSIDERATIONS

1 United States/Canada:

Recycling: Follow all applicable local, state and federal recycling requirements.

Disposal: Follow all applicable local, state and federal disposal requirements.

2 European Union

ACB must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations.

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Section 14 –TRANSPORT INFORMATION

1 Proper Shipping Name: Lithium ion batteries.

2 Hazard Class: 9 – Miscellaneous Dangerous Goods.

3 Identification Number: UN 3480

4 Packing Group: II (per GHS Regulations); No packing group specified under US DOT regulations.

5 Packing Instructions: P903 (IMDG code (Amdt.39-18) 2018 Edition).

6 Not allowed on passenger aircraft.

7 Environmental Hazards:

Lithium ion batteries are not classified as marine pollutants in the United States under 49 CFR Part 171.101 Appendix B.

Follow all applicable local, state and federal requirements when identifying additional environmental hazards.

Section 15 –REGULATORY INFORMATION

1 United States

TSCA Status: All ingredients in these products are listed on the TSCA inventory.

OSHA: The ingredients meet criteria as per 29 CFR 1910.1200

EPCRA 302/304: None.

EPCRA 311/312: Reportable in excess of 10,000 lbs.

EPCRA 313: None.

CERCLA RQ: None.

2 European Union

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I: Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II: Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I as amended: Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals: Not listed.

Other EU Regulations

Directive 96/82/EC (Seveso II) on the control of major accident hazards involving dangerous substances: Not listed.

Directive 94/33/EC on the protection of young people at work: Not listed.

This Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006 and amended on 28 May 2015 by (EU) 2015/830.

Regulation (EC) No. 1272/2008 These products are not classified as hazardous.

3 Additional Regulatory Not provided elsewhere

1. 本报告结果仅对测试样品负责。The results in this report are relevant only to the sample(s) tested.

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Date: 2021-05-23

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62th Edition of the IATA Dangerous Goods Regulations (IATA DGR).

2019-2020 Edition of the CAO Technical Instructions for the Safe Transport of Dangerous Goods by Air.

2018 Edition of the International Maritime Dangerous Goods Code (IMDG Code).

Section 16 –OTHER INFORMATION

This file is only effective to the batteries (ENCHARGE-3T-1P-INT (B03-T01-INT00-1-2)) provided by commissioner Enphase Energy), which manufactured by F Shenzhen Sunwinon Electronics Co Ltd.The commissioner provides the composition information of batteries, and promises its integrity and accuracy.

Users should read this file carefully, and use the batteries in correct method. Guangdong Inspection And Quarantine Technology Center doesn't assume responsibility for any damage or loss because of misuse of batteries.

* * * * 报告结束End of report * * * *