广州海关技术中心
GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

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电话Tel：020-22131000　邮箱Email：ppdc@iqtcnet.cn　网址Website：https://www.iqtcnet.cn

材料安全数据表
Material Safety Data Sheet

样 品 名 称： 磷酸铁锂电池

Sample Name: Lithium Iron Phosphate Battery

委 托 单 位： 广州菲利斯太阳能科技有限公司

Applicant: Guangzhou Felicity Solar Technology Co., Ltd.

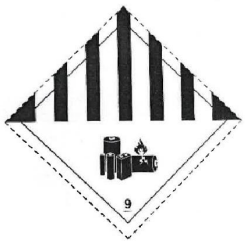
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材料安全数据表
Material Safety Data Sheet

1. 化学品及企业标识 Chemical product and company identification	
样品名称 Sample Name	磷酸铁锂电池 Lithium Iron Phosphate Battery
型号 Model	FLH96050SMG2
委托单位 Applicant	广州菲利斯太阳能科技有限公司 Guangzhou Felicity Solar Technology Co., Ltd.
委托单位地址 Applicant Address	广州市白云区人和镇东华华业路 2 号、4 号、6 号、8 号、10 号、12 号（空港白云） (Airport Baiyun) No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P.R. China
生产单位 Manufacture	广州菲利斯太阳能科技有限公司 Guangzhou Felicity Solar Technology Co., Ltd.
生产单位地址 Manufacture Address	广州市白云区江高镇白云 1 号硬科技产业园 No.1 Hard Technology Industrial Park, Jianggao Town, Baiyun District, Guangzhou, Guangdong, P.R. China
应急电话 Emergency telephone call	020-36719118
2. 危险性概述 Hazards identification	
物品危险分类 Hazard label	 No.9A危险性标签 No.9A hazard label
爆炸危险性 Explosive risk	该物品不属于爆炸危险品。 This article does not belong to the explosion dangerous goods.
易燃危险性 Flammable risk	该物品不属于易燃危险品。 This article does not belong to the flammable material.
氧化危险性 Oxidation risk	该物品不属于氧化危险品。 This article does not belong to the oxidation of dangerous goods.
毒害危险性 Toxic risk	该物品不属于毒害危险品。 This article does not belong to the toxic dangerous goods.
放射危险性 Radioactive risk	该物品不属于放射危险品。 This article does not belong to the radiation of dangerous goods.
腐蚀危险性 Mordant risk	该物品不属于腐蚀危险品。 This article does not belong to the corrosion of dangerous goods.
其他危险性 other risk	该电池属于锂离子电池。 Battery which belong to the Lithium-ion battery.

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3. 成分/组成信息
Composition information

成分 Hazardous components	含量/% Content / %	CAS NO.	备注 Remark
铝箔 Al	3.5%	7429-90-5	--
铜箔 Cu	7.8%	7440-50-8	--
磷酸铁锂 $LiFePO_4$	34.1%	15365-14-7	--
石墨 C	16.7%	7782-42-5	--
隔膜 $(C_3H_6)_n$	3%	9003-07-0	--
电解 $LiPF_6$/EC+DEC	20.3%	/	--
铝合金 Al	14.6%	7429-90-5	--
铅 Pb	N/A	7439-92-1	--
镉 Cd	N/A	7440-43-9	--
汞 Hg	N/A	7439-97-6	--

4. 急救措施
First aid measures

眼睛：
万一接触，立即用大量的清水冲洗至少15分钟，翻起上下眼睑，直到化学的残留物消失为止，迅速就医。
Eye
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
皮肤：
万一接触，用大量水冲洗至少15分钟，同时除去污染的衣物和鞋子，迅速就医。
Skin
Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
吸入：
立即从暴露处移至空气清新处，如果呼吸困难给予输氧，立即就医。
Inhalation
Remove from exposure and move to fresh air immediately. Use oxygen if available.
食入：
饮用两杯牛奶或水。如果当事人仍然清醒可以采取催吐的方法，并且立即就医。
Ingestion
Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician

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5. 消防措施
Fire-fighting measures

燃点：不适用
Flash Point: N/A.
自燃温度：不适用
Auto-Ignition Temperature: N/A.
灭火介质：大量水（降温），二氧化碳
Extinguishing Media: Water, CO_2.
特殊灭火程序：自给式呼吸器
Special Fire-Fighting Procedures: Self-contained breathing apparatus.
异常火灾或爆炸：当电芯暴露于过热的环境中时，安全阀可能会打开。
Unusual Fire and Explosion Hazards: Cell may vent when subjected to excessive heat-exposing battery contents.
燃烧产生的危险物品：一氧化碳，二氧化碳，锂氧化物烟气
Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

6. 泄露应急处理
Accidental release measures

为防止电池材料泄露或释放采取的措施
如果电池内部材料泄露，试验人员应立刻撤离试验区直到烟气消散。将通风设备打开吹散危险性气体。用抹布擦净试验区，清除溢出的液体，将泄露电池放进塑料袋中，然后放进钢制容器。首选的反应是离开该区域，让电池冷却，蒸汽消散，避免皮肤和眼睛接触或吸入蒸汽。
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. Wipe it up with a cloth, and dispose of it 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. If the battery material is released, remove personnel from area until fumes Avoid skin and eye contact or inhalation of vapors.
废弃物处置方法
建议将电池完全放电，消耗电池内部的锂金属，盐水浸泡处理后，交给专业的回收公司处理；或按照当地法规处理。
Waste Disposal Method
It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, immerse in salt water, and then give it to a professional recycling company for processing; or handle in accordance with local regulations.

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7. 操作处置和储存
Handling and storage

禁止打开、毁坏或焚烧电池，因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。

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 over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

操作处置和储存中的防范措施

禁止物理或电滥用，禁止高温储存，最好将电池储存在阴凉、干燥、通风等温度变化较小的环境中。禁止将电池接触加热设备或将电池直接暴露于阳光中。

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.

其他要注意的防范措施

拆解、挤压、直接放入火中或高温条件下，电池可能发生爆炸和燃烧。禁止短接或将电池正负极错误的安装在设备中。

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. 接触控制/个人防护
Exposure controls/personal protection

呼吸防护：

当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。

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.

通风条件

正常使用条件下不需要。

Ventilation

Not necessary under conditions of normal use.

防护手套

正常使用条件下不需要。

Protective Gloves

Not necessary under conditions of normal use.

其他防护服装或设备

正常使用条件下不需要。

Other Protective Clothing or Equipment

Not necessary under conditions of normal use.

电池开阀试验时应做好个人防护，呼吸防护，防护手套，防护服装和有护边的安全玻璃罩都是要准备的。

Personal Protection is recommended for venting battery Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

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9. 物理和化学特性
Physical and chemical properties

外形：方形
Appearance: Quadrate shape
气味：泄漏时，有醚的气味。
Odors: If leaking, smells of medical ether.
酸碱度：不适用
pH: Not applicable as supplied.
燃点：除单个电芯暴露试验外其他不适用。
Flash Point: Not applicable unless individual components exposed.
可燃性：除单个电芯暴露试验外其他不适用。
Flammability: Not applicable unless individual components exposed.
相对密度：除单个电芯暴露试验外其他不适用。
Relative density: Not applicable unless individual components exposed.
溶解性（水溶性）：除单个电芯暴露试验外其他不适用。
Solubility (water): Not applicable unless individual components exposed.
溶解性（其他）：除单个电芯暴露试验外其他不适用。
Solubility (other): Not applicable unless individual components exposed.

10. 稳定性和反应活性
Stability and reactivity

稳定性：产品在第7节所述的条件下稳定。
Stability: Product is stable under conditions described in Section 7.
应避免的条件：加热70℃以上或焚烧，变形，毁坏，粉碎，拆卸，过充电，短路，长时间暴露在潮湿的条件下。
Conditions to Avoid: Heat above 70℃ or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.
应避免的材料：氧化剂，碱，水。
Materials to avoid: Oxidising agents, alkalis, water.
危险分解物：有毒烟雾，并可能形成过氧化物。
Hazardous Decomposition Products: Toxic Fumes, and may form peroxides.
聚合危害：不适用
Hazardous Polymerization: N/A.
如果发生泄露，避免与强氧化剂，无机酸，强碱，卤代烃接触。
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated Hydrocarbons.

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11. 毒理学资料
Toxicological information

标志及症状：无，除非电池破裂。
Signs & symptoms: None, unless battery ruptures.
内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤的刺激性。
In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.
吸入：对肺有刺激性。
Inhalation: Lung irritant.
皮肤接触：对皮肤刺激性。
Skin contact: Skin irritant.
眼睛接触：对眼睛有刺激性。
Eye contact: Eye irritant
食入：吞下中毒。
Ingestion: Poisoning if swallowed.
下列情况下健康状况会恶化：万一发生与电池内部材料接触的事故，轻微或严重的刺激，都可能使皮肤出现干燥和灼烧的感觉，并且损坏靶器官（肝脏，肾脏）的神经。
Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target Organs nerves, liver and kidneys.

12. 生态学资料
Ecological information

对哺乳动物的影响：目前未知。
Mammalian effects: None known at present.
生态毒性：目前未知。
Eco-toxicity: None known at present.
生物体内积累：慢慢地生物降解。
Bioaccumulation potential: Slowly Bio-degradable.
环境危害：目前没有已知的环境危害。
Environmental fate: None known environmental hazards at present.

13. 废弃处置
Disposal consideration

不要焚烧，或使电池温度超过70℃，这种滥用可导致泄漏和/或电池爆炸。按照相应的地方性法规处理。
Do not incinerate, or subject cells to temperature in excess of 70℃, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

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14. 运输信息
Transport information

运输标签：No.9A危险性标签
Label for conveyance: No.9A hazard label
UN编号：UN 3480
UN Number: UN 3480
运输专用名称：锂离子电池
Proper Shipping name: Lithium ion batteries
IMDG Code/TDG包装导则：P903
IMDG Code/TDG Packing Instruction: P903
IMDG Code/TDG 特殊规定：230，310，348，376，377，384，387
IMDG Code/TDG Special provisions: 230, 310, 348, 376, 377, 384, 387
EmS编号：F-A ,S-I
EmS No: F-A ,S-I
海洋污染物：无
Marine pollutant: No
危害分类：货物应遵守联合国危险货物运输的建议书规章范本第二十三版和IMDG Code（Amdt.42-24）包装导则P903的要求。包括通过UN38.3测试手册要求。
Hazard Classification: The goods shall be complied with the Packing Instructions TDG 23th Edition and the Packing Instructions P903 of IMDG Code（Amdt.42-24）, including the passing of the UN38.3 test.

15. 法规信息
Regulation information

主要可适用锂电池运输的法律法规如下:
The laws and regulations applicable to the transportation of lithium batteries are as follows:
联合国《关于危险货物运输的建议书 规章范本》ST/SG/AC.10/1/Rev 23.
The UN Model Regulations, United Nations ST/SG/AC.10/1/Rev 23. Recommendations on the Safe Transport of Dangerous Goods
国际民用航空组织（ICAO）技术指令对于通过航空对危险货物的安全运输要求
The International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air Transport
国际航空运输协会（IATA）危险货物运输规则（2026版67th）
The International Air Transport Association (IATA) Dangerous Goods Regulations (67th Edition 2026)
国际海事协会（IMO）国际海事危险货物规则(IMDG Code) (Amdt.42-24)
International Maritime Organization (IMO) International Maritime Dangerous Goods Code (IMDG Code) (Amdt.42-24)
《危险品公路运输欧洲协议》（2025年版）
Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2025)
JT/T 617-2018《危险货物道路运输规则》
JT/T 617-2018 Regulations concerning road transportation of dangerous goods.

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地址：中国广东省广州市天河区珠江新城花城大道66号B座　邮编Postcode：510623
Add.：Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou,Guangdong, P.R.C.
电话Tel：020-22131000　邮箱Email：ppdc@iqtcnet.cn　网址Website：https://www.iqtcnet.cn

16. 其他信息
Other information

本文件仅对由委托方提供的，并由广州菲利斯太阳能科技有限公司生产的电池（型号：FLH96050SMG2）有效。该电池的成分信息由委托方提供并承诺其完整性和准确性。

用户应仔细阅读此文件，并按照正确的方法使用电池，如因电池使用不当造成的损害或损失，广州海关技术中心不承担任何责任。

This file is only effective to the batteries (Model: FLH96050SMG2) provided by commissioner which manufactured by Guangzhou Felicity Solar Technology 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. Guangzhou Customs District Technology Centre doesn't assume responsibility for any damage or loss because of misuse of batteries.

* * * * 报告结束 End of report * * * *

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