中国认可
国际互认
检验
INSPECTION
CNAS IB0551

Report No.:
报告编号：FLS20231215M502-2

Certificate for Safe Transport of Goods by Sea

货物海运条件鉴定书

Dangerous Goods 危险货物

Name of Goods 货物名称	Lithium iron phosphate battery FLA48500 磷酸铁锂电池 FLA48500
Applicant 委托单位	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司
Issue Date 签发日期	2024-04-24

Inspected by/检验	**Reviewed by/审核**	**Approved by/批准**
Inspection Engineer	Audit Engineer	Approval Engineer

广州邦禾检测技术有限公司

Guangzhou MCM Certification & Testing Co., Ltd.

Inspection Conclusion
检验结论

Name of Goods 货物名称	Lithium iron phosphate battery FLA48500 磷酸铁锂电池 FLA48500			
Type, Model and Rating 类型、型号参数	Lithium ion batteries 锂离子电池	FLA48500, 51.2V, 500Ah, 25kWh		
Information 信息	Package G. W. 包装毛重	245±2kg	Equipment's Qty. 设备数量	/
	Batteries' N.W. 电池净重	215±2kg	Batteries' Qty. 电池数量	1pcs
Applicant 委托单位	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司			
	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华华业路 2 号			
Manufacturer 制造单位	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司			
	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华华业路 2 号			
Factory 生产单位	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司			
	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华华业路 2 号			
Identification 货物鉴定单位	Guangzhou MCM Certification & Testing Co., Ltd. 广州邦禾检测技术有限公司			
Standard 鉴定标准	IMO *International Maritime Dangerous Goods Code* (41-2022 Edition) IMO《国际海上危险货物运输规则》（41-2022 版）			
Date 日期	Submission 送检日期	2023-12-15	Appraisal 鉴定日期	2024-01-24
	Validity 有效期	2024-04-24 ～ 2024-12-31		
Inspection Conclusion: 检验结论：	**(1). Hazards identification 危险品识别** Dangerous Goods, Class 9 第九类危险货物 UN 3480, LITHIUM ION BATTERIES UN 3480，锂离子电池 **(2). Basis and provisions of appraisal 鉴定依据及条款** Entry UN 3480 of Dangerous Goods List 危险货物列表 条目 UN 3480 **(3). Packing requirements 包装要求** Packing Instruction P903 包装说明 P903 Seal: 检验专用章：			
Comment: 备注：	修改：取代原报告 FLS20231215M502-1，2024.01.30 签发			

IMO *International Maritime Dangerous Goods Code* (41-2022 Edition) IMO《国际海上危险货物运输规则》（41-2022 版）			
Clause- Requirement 条款-要求		**Result-Remark 结果-备注**	**Verdict 判定**
Special Provision 230 特殊条款 230			**P**
Lithium cells and batteries may be transported under this entry if they meet the provisions of 2.9.4. 锂电芯和电池如符合 2.9.4 的规定，可按本条目运输。			P
2.9.4.1	Each cell or battery is of the type proved to meet the requirements of each test of the Manual of Tests and Criteria, part III, subsection 38.3. 每个电芯或电池按类型满足《试验和标准手册》第 III 部分第 38.3 节每项试验的要求。	The lithium battery met the test requirements of Section 38.3 of UN Manual of Test and Criteria. See test report FLS20231215U02-2 锂电池符合联合国《试验和标准手册》中 38.3 章的测试要求。见检测报告 FLS20231215U02-2	P
2.9.4.2	Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally incident to transport. 每一电芯和电池都装有安全排气装置，或设计上能预防在正常运输中难免发生的条件下骤然破裂	Meet the requirements through assessment and testing 通过评估和测试，满足要求	P
2.9.4.3	Each cell and battery is equipped with an effective means of preventing external short circuits. 每一电芯和电池都装有防止外部短路的有效装置	Meet the requirements through assessment and testing 通过评估和测试，满足要求	P
2.9.4.4	Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.). 每个包含多个并联电芯或电芯块的电池，都装有防止反向电流造成危险所需的有效装置（例如二极管、保险丝等）	Meet the requirements through assessment and testing 通过评估和测试，满足要求	P
2.9.4.5	Cells and batteries shall be manufactured under a quality management programme. 电芯和电池应在质量管理计划下生产。	The customer states that it meets the requirements. 客户申明满足要求。	P
2.9.4.6	Lithium batteries, containing both primary lithium ion cells metal cells and rechargeable lithium ion cells, that are not designed to be externally charged(see special provision 387 of chapter 3.3) shall meet the following conditions: .1 the rechargeable lithium ion cells can be only charged from the primary lithium metal cells. .2 overcharge of the rechargeable lithium ion cells is precluded by design; .3 the battery has been tested as a lithium primary battery; and .4 component cells of the battery shall be of a type proved to meet the respective testing requirements of the Manual of Tests and Criteria, part III, subsection 38.3. 按设计要求不能外部充电的既含有一次性锂金属电芯又含有可充电锂离子电芯的电池（见第 3.3 章节特殊规定 387），必须满足下列条件： .1 可充电锂离子电芯仅能通过一次性锂金属电芯充电； .2 通过设计排除了可充电锂离子电池发生过充现象的可能性； .3 整个电池已经作为一次性电池通过实验；且 .4 组成电池的各个电芯必须分别通过《试验及标准手册》第 III 部分第 38.3 节中的实验。	The battery does not belong to this type. 电池不属于此种类型。	N/A

IMO *International Maritime Dangerous Goods Code* (41-2022 Edition) IMO《国际海上危险货物运输规则》（41-2022 版）			
Clause- Requirement 条款-要求		**Result-Remark 结果-备注**	**Verdict 判定**
2.9.4.7	Except for button cells installed in equipment (including circuit boards), manufactures and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, part III, subsection 38.3, paragraph 38.3.5. 除安装在设备（包括电路板）中的纽扣电池外，2003 年 6 月 30 日之后制造的电芯或电池的制造商和后续分销商必须提供《试验和标准手册》第三部分第 38.3 小节第 38.3.5 段规定的测试概要。	Lithium battery test summary is provided as required: FLS20231215UG02-2 锂电池按要求提供了测试概要： FLS20231215UG02-2	P
Special Provision 348 特殊条款 348			**P**
	Batteries manufactured after 31 December 2011 shall be marked with the Watt hour rating on the outer case. 2011 年 12 月 31 日后生产的电池， 应该在外壳上标记瓦特-小时的额定值。	The watt hour rating 25kWh has been marked on the outer case. 瓦时数 25kWh 已标明在外壳上	P
Packing Instruction P903 包装指引 P903			**P**
(1)	For cells and batteries 对于电芯和电池	Complied 符合要求	P
	(Applicable packing cases 适用的包装箱) Drums 桶 (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes 箱 (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans 罐 (3A2, 3B2, 3H2).	4D Plywood box used 使用 4D 胶合板箱	P
	Cells or batteries packed in packagings shall be protected against damage that may be caused by the movement or displacement of the cells or batteries within the packaging. 装在包装中的电芯或电池应采取保护措施，防止电芯或电池因在包装中移动或位置变化而造成损坏。	The batteries have been properly secured. 电池已有适当固定	P
	Packagings shall conform to the packing group II performance level. 包装应该符合包装类别 II 级的性能水平。	Complied 符合要求	P
(2)	In addition for cells or batteries with a gross mass of 12 kg or more employing a strong, impact resistant outer casing, and, assemblies of such cells or batteries 此外，对于总质量 12kg 或以上的采用坚固、耐碰撞外壳的电芯或电池，以及这类电芯或电池的装配	Gross mass of batteries: 215±2kg 电池总质量：215±2kg	P
	(a) Strong outer packagings 坚固的外包装 (b) Protective enclosures (e.g. fully enclosed or wooden slatted crates); 保护外罩（例完全密封的或木制的板条箱） (c) Pallets or other handling devices. 货板或其他搬运装置	Strong outer packagings and handling devices used. 采用坚固的外包装和搬运装置	P
	Cells or batteries shall be secured to prevent inadvertent movement, and the terminals shall not support the weight of other superimposed elements. 电芯或电池应加以固定，以防意外移动，电极不得承受其他叠放物品的重量	The batteries have been properly secured. 电池已有适当固定	P

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Clause- Requirement 条款-要求		**Result-Remark 结果-备注**	**Verdict 判定**
	Packagings need not meet the requirements of 4.1.1.3. 包装无须符合 4.1.1.3 的要求。		—
(3)	For cells or batteries packed with equipment 对于与设备一同打包的电芯或电池	Batteries transported separated from equipment. This entry omitted. 电池单独运输，本条目省略	N/A
(4)	For cells or batteries contained in equipment: 对于安装在设备上的电芯或电池	Batteries transported separated from equipment. This entry omitted. 电池单独运输，本条目省略	N/A
(5)	For cells and batteries contained in or packed with equipment, or installed in equipment: 对于含有或与设备一同打包或安装在设备上的电芯或电池	Batteries transported separated from equipment. This entry omitted. 电池单独运输，本条目省略	N/A
Additional requirement 附加要求: Cells or batteries shall be protected against short circuit. 电芯或电池应该加以保护免受短路。		Batteries have been protected against short circuit. 电池已有防止短路措施。	P
Packing Instruction LP903 包装指引 LP903			**N/A**

MCM Technology & Service

Photos of the Battery
电池照片

Battery（FLA48500, 51.2V, 500Ah, 25kWh）





Felicitysolar®

Make life full of hope

Lithium iron phosphate battery

Model	FLA48500
Nominal Voltage	51.2V
Energy	25kWh
Operating Voltage	44.8-57.6V
Recommend Charge/ Discharge Current	≤200A
Recommend Charge/ Discharge Power	≤10,000W
Scalability	Up to 15 units in parallel
Communication	RS485 / CAN
Cycle Life	≥6,000@25°C,80%DOD
Charging Temperature Range	0-55°C
Discharging Temperature Range	-20-55°C

Photos of the Package
包装件照片







-- End of Report –

Important Note
注意事项

1. This inspection report is invalid without special inspection seal and cross-page seal of Guangzhou MCM Certification & Testing Co., Ltd.
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3. This inspection report is invalid without the signatures of Approver, Reviewer and Inspector.
本检验报告无批准人、审核人及检验员签名无效。

4. This inspection report is invalid if altered.
本检验报告涂改无效。

5. Objection to this inspection report must be submitted to Guangzhou MCM Certification & Testing Co., Ltd. within 15 days after the publication of the report.
若对检验报告有异议，必须在报告发布之日起十五天内向广州邦禾检测技术有限公司提出。

6. This report is only responsible for the received samples.
本报告仅对来样负责。

7. As for the inspection results, “N/A” means “Not applicable”, “P” means “Pass” and “F” means “Fail”.
本检验结果中“N/A”表示“不适用”，“P”表示“通过”，“F”表示“不通过”。

MCM Technology & Service

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