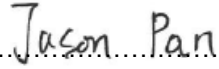

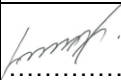





Material Safety Data Sheet 材料安全数据表		
Sheet No. 数据表编号	4917072.51	
Date of issue 签发日期	2024-04-09	
Total number of pages 总页数	10 pages	
Applicant's name 申请人名称	See next page	
Address 地址	See next page	
Manufacturer's name 制造商名称	See next page	
Address 地址	See next page	
Item description 物品描述	See next page	
Model/Type reference 型号	See next page	
Rating 规格	See next page	
Laboratory compiling the sheet 编制实验室	DEKRA Testing and Certification (Shanghai) Ltd., Guangzhou Branch Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China	
UN test report No. UN测试报告编号	18270BC40098801	
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Compiled by 编制	Jason Pan	
Checked by 审核	Alger Yang	
Approved by 批准	Among Chen	

1. Identification 识别信息	
Item description 物品描述	LiFePO ₄ Li-ion Battery Pack 磷酸铁锂离子电池组
Item photo 物品图片	
Model/Type reference 型号	MLB-100 smart
Rating 规格	12,8 V, 100 Ah, 1280 Wh
Applicant's name 申请人名称	Gimeg Nederland B.V.
Address 地址	Atoomweg 99 - 3542 AA - Utrecht, Netherlands
Manufacturer's name 制造商名称	杭州力奥科技有限公司 HANGZHOU LIAO TECHNOLOGY CO., LTD
Address 地址	中国浙江省杭州市瓶窑镇凤都工业区羊城路15号 No.15 Yangcheng road, Fengdu Industrial zone, Pingyao town, 311100 Hangzhou, Zhejiang, China
Tel. 电话	15858281432
Fax 传真	+86(0)571-81107038
Postcode 邮编	311100
E-mail 电子邮箱	cheng@hz-liao.com
Emergency phone 应急电话	15858281432

2. Composition information on ingredients 成分组成信息			
Chemical Name 化学名称	Chemical Formula 化学式	CAS No. CAS 号	Weight 重量含量 (%)
Lithium iron phosphate	LiFePO ₄	15365-14-7	38,0
Graphite	C	7782-42-5	20,0
Copper	Cu	7440-50-8	9,0
Aluminum	Al	7429-90-5	11,0
Polypropylene	(C ₃ H ₆) _n	9003-07-0	2,0
Lithium Hexafluorophosphate	LiPF ₆	21324-40-3	2,0
Ethylene carbonate	C ₃ H ₄ O ₃	96-49-1	9,0
Empirical Formula	C ₄ H ₈ O ₃	623-53-0	9,0
Lead	Pb	7439-92-1	Not Detected
Cadmium	Cd	7440-43-9	Not Detected
Mercury	Hg	7439-97-6	Not Detected

3. Hazards identification 危险性概述	
Explosive risk 爆炸危险性	This article does not belong to the explosion dangerous goods 该物品不属于爆炸危险品
Flammable risk 易燃危险性	This article does not belong to the flammable material 该物品不属于易燃危险品
Oxidation risk 氧化危险性	This article does not belong to the oxidation of dangerous goods 该物品不属于氧化危险品
Toxic risk 毒害危险性	This article does not belong to the toxic dangerous goods 该物品不属于毒害危险品
Radioactive risk 放射危险性	This article does not belong to the radiation of dangerous goods 该物品不属于放射危险品
Mordant risk 腐蚀危险性	This article does not belong to the corrosion of dangerous goods 该物品不属于腐蚀危险品
Other risks 其它危险性	LiFePO ₄ Li-ion Battery Pack 磷酸铁锂离子电池组

4. First-aid measures 急救措施

Once the battery shell rupture, content contact with the human body will produce harm, once contact, should take the following emergency measures:

电池外壳破裂，内容物接触人体会产生危害，一旦发生接触，应采取以下应急措施：

Eye: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids, get medical aid immediately

眼睛：万一接触，立即用大量清水冲洗至少 15 分钟，翻起上下眼睑，直到化学的残留物消失为止并迅速就医

Skin: Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes, get medical aid immediately

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并迅速就医

Inhalation: Remove from exposure and move to fresh air immediately. Use oxygen if available, get medical aid immediately

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并立即就医

Ingestion: Give at least 2 glasses of milk or water. Induce vomiting unless the patient is unconscious, get medical aid immediately

食入：饮用两杯牛奶或水。如果当事人仍然清晰可以采取催吐的方法并立即就医

5. Fire-fighting measures 消防措施

Flashpoint: Not applicable

燃点：不适用

Auto-ignition temperature: Not applicable

自燃温度：不适用

Extinguishing media: Water, CO2

灭火介质：大量水（降温、灭火）、二氧化碳

Special fire-fighting procedures: Self-contained breathing apparatus

特殊灭火程序：自给式呼吸器

Unusual fire and explosion hazards: Cell may vent when subjected to excessive heat-exposing battery contents

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

Hazardous combustion products: Carbon monoxide, carbon dioxide, lithium oxide fumes

燃烧产生的危险物品：一氧化碳、二氧化碳、锂氧化物烟气

6. Accidental release measures 泄露应急处理**Steps to be taken in case material is released or spilled**

为防止电池材料泄露或释放采取的措施

If the battery material is released, remove operators from the area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, 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. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate

如果电池内部材料泄露，操作人员应立刻撤离事故区直到烟气消散。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。避免皮肤和眼睛接触或吸入有害气体

Waste disposal method

废弃物处置方法

It is recommended to discharge the battery to the end. Use up the metal lithium inside the lithium metal battery, and delivered to professional institutions for further treatment

建议将电池完全放电，锂金属电池消耗完电池内部的金属锂，并且交付给专业机构处理

7. Handling and storage 操作处置与储存

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

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

Do not short circuit terminals or overcharge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids

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

Precautions to be taken in handling and storing

操作处置和储存中的防范措施

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

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、通风及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

Other precautions

其它要注意的防范措施

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

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

8. Exposure controls and personal protection 接触控制和个人防护**Respiratory protection**

呼吸防护

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

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

Ventilation

通风条件

Not necessary under conditions of normal use

正常使用条件下不必考虑

Protective gloves

防护手套

Not necessary under conditions of normal use

正常使用条件下不必考虑

Other protective clothing or equipment

其它防护服装或设备

Not necessary under conditions of normal use

正常使用条件下不必考虑

Personal protection is recommended for venting battery, including respiratory protection, protective gloves, protective clothing and safety glass with side shields

电池泄放试验时应做好个人防护，包括呼吸防护、防护手套、防护服装和有护边的安全玻璃罩

9. Physical and chemical properties 理化特性

Appearance: see item photo

外形：见物品照片

Odour: If leaking, smells of medical ether

气味：泄漏时，有醚的气味

PH: Not applicable

酸碱度：不适用

Flash Point: Not applicable unless individual components exposed

闪点：针对单个组分暴露情况，其它不适用

Flammability: Not applicable unless individual components exposed

易燃度：针对单个组分暴露情况，其它不适用

Relative density: Not applicable unless individual components exposed

相对密度：针对单个组分暴露情况，其它不适用

Solubility (water): Not applicable unless individual components exposed

溶解性（水溶性）：针对单个组分暴露情况，其它不适用

Solubility (other): Not applicable unless individual components exposed

溶解性（其它）：针对单个组分暴露情况，其它不适用

10. Stability and reactivity 稳定性和反应性

Stability: Product is stable under conditions described in section 7

稳定性：产品在第 7 节所述的条件下稳定

Avoid: Heat above 70 °C or incinerate, deform, mutilate, crush, disassemble, overcharge, short circuit, expose over a long period to humid conditions

应避免：加热 70 °C 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

Materials to avoid: Oxidising agents, alkalis, water

应避免的材料：氧化剂、碱、水

Hazardous decomposition products: Toxic fumes, and may form peroxides

危险分解物：有毒烟雾，并可能形成过氧化物

Hazardous polymerization: Not applicable

聚合危害：不适用

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons
如果发生泄露，避免与强氧化剂、无机酸、强碱、卤代烃接触

11. Toxicological information 毒理学资料

Signs & symptoms: None, unless battery ruptures

标志及症状：无，除非电池破裂

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin

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

Inhalation: Lung irritant

吸入：对肺有刺激性

Skin contact: Skin irritant

皮肤接触：对皮肤刺激性

Eye contact: Eye irritant

眼睛接触：对眼睛有刺激性

Ingestion: Poisoning if swallowed

食入：吞下中毒

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

下列情况下会危险人员身体健康：如果与电池内部材料直接接触，皮肤可能会出现干燥、灼烧等轻微或严重的刺激，并且损坏靶器官的神经、肝脏和肾脏

12. Ecological information 生态学资料

Mammalian effects: None known at present

对哺乳动物的影响：目前未知

Eco-toxicity: None known at present

生态毒性：目前未知

Bioaccumulation potential: Slowly bio-degradable

生物体内积累：慢慢地生物降解

Environmental fate: Not known environmental hazards at present

环境危害：目前没有已知的环境危害

13. Disposal consideration 废弃处置

Do not incinerate, or subject cells to temperature of more than 70°C, such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations

禁止焚烧，或使电池温度超过 70°C，这种滥用可导致泄漏和/或电池爆炸。应按照相应的地方性法规处理

14. Transport information 运输信息

Label for conveyance: Lithium battery mark, class 9 lithium battery hazard label, cargo aircraft only label

运输标签：锂电池标记，第 9 类锂电池危险品标签，仅限货机标签

UN Number: UN3480

UN 编号：UN3480

Packaging Group: Not applicable

包装等级：不适用

EMS No: F-A, S-I

EMS 编号：F-A, S-I

Marine pollutant: No

海洋污染物：无

Proper shipping name: Lithium-ion batteries (including lithium-ion polymer batteries)

正确的装运名称：锂离子电池（包括锂离子聚合物电池）

Hazard classification: The goods have complied with the requirements of section IB of packing instructions 965 of 65th DGR manual of IATA (2024 edition), special provision 188 of IMDG CODE (Amdt. 40-20) (2020 edition), including the passing of the UN38.3 test

危害分类：货物符合 IATA 第 65 版《危险品规则》包装说明 965 第 IB 节规定（2024 年版），《国际海运危险货物规则》特殊规定 188（Amdt. 40-20）（2020 年版），包括通过 UN38.3 测试手册要求

15. Regulatory information 法规信息

<Dangerous Goods Regulations>

《危险品规则》

<Recommendations on the Transport of Dangerous Goods Model Regulations>

《对危险货物运输的有关规定的建议》

<International Maritime Dangerous Goods>

《国际海运危险货物规则》

<Regulations concerning Road Transportation of Dangerous Goods>

《危险货物道路运输规则》

<Agreement concerning the International Carriage of Dangerous Goods by Road>

《道路危险货物国际运输协议》

<Technical Instructions for the Safe Transport of Dangerous Goods>

《危险品安全运输技术指令》

<Classification and Code of Dangerous Goods>

《危险货物分类和品名编号》

<Occupational Safety and Health Act> (OSHA)

《职业安全卫生法》

<Toxic Substance Control Act> (TSCA)

《有毒物质控制法》

<Consumer Product Safety Act> (CPSA)

《消费产品安全法》

<Federal Environmental Pollution Control Act> (FEPCA)

《联邦环境污染控制法》

<The Oil Pollution Act> (OPA)

《石油污染法案》

<Superfund Amendments and Reauthorization Act Title III (302/311/312/313)> (SARA)

《超级基金修正案和再授权法案III (302/311/312/313)》

<Resource Conservation and Recovery Act> (RCRA)

《资源保护及恢复法案》

<Safety Drinking Water Act> (CWA)

《安全饮用水法》

<California Proposition 65>

《加州 65 提案》

<Code of Federal Regulations> (CFR)

《美国联邦法规》

In accordance with all Federal, State and local laws

根据所有联邦、州和地方法律

16. Other information 其它信息

Bibliography 参考文献:

GB/T 16483-2008, Regulation (EC) No 1907/2006, 29CFR1910.1200:2013

General disclaimer 免责声明:

The applicant provides the composition information of batterie and promises its integrity and accuracy. Users should read this file carefully and use the batteries in the correct manner. DEKRA doesn't take responsibility for any damage or loss because of the misuse of batteries

该电池的成分信息由申请人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，DEKRA德凯不承担任何责任

- End 结束 -