# 材料安全数据表

# MATERIAL SAFETY DATA SHEET

| | | |
|---|---|---|
| 产品名称<br>**Goods Name** | : | 储能锂电池<br>**Lithium Battery Energy Storage** |
| 型号<br>**Model Name** | : | **SR-SE05B** |
| 委托单位<br>**Applicant** | : | 深圳硕日新能科技股份有限公司<br>**SRNE Solar Co., Ltd** |
| 报告编号<br>**Report Number** | : | **KS2410S4514B04** |
| 发行日期<br>**Issue Date** | : | **November 12, 2024** |

（制作）　　（批准）

**Written by:** 江慧芳　　**Approved by:** 杨龙

广东科正技术服务有限公司

**KSIGN(Guangdong) Testing Co., Ltd.**

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# Material Safety Data Sheet

Report No.: KS2410S4514B04

*这份材料安全数据表是根据客户提供的信息编辑，其内容和格式按客户要求来修订。
* The MSDS is prepared based on the information provided by client. The contents and formats of this MSDS are revised as per client's request.

## 1. 化学品及企业标识
## Chemical and Enterprise Identification

| | |
|---|---|
| **产品名称**<br>**Product Name** | 储能锂电池(型号: SR-SE05B)<br>Lithium Battery Energy Storage (Model: SR-SE05B) |
| **产品描述**<br>**Product description** | 额定：Rated: 51.2V, 100Ah, 5.12kWh<br>重量：Weight: Appr. 44.0kg<br>尺寸：Dimensions: 646.0*399.0*150.0 (mm) |
| **商标**<br>**Trademark** | N/A |

**材料安全数据表生产工厂的详细信息**
**Details of the factory of the Material safety data sheet**

| | |
|---|---|
| **生产工厂**<br>**Factory** | 深圳硕日新能科技股份有限公司东莞分公司<br>SRNE SOLAR CO., LTD Dongguan Branch |
| **地址**<br>**Address** | 广东省东莞市长安镇复兴路36号5号楼301室<br>Room 301, Building 5th, Fuxing Rd No.36, Chang'an Town, Dongguan City, Guangdong Province, China PR |
| **电话**<br>**Telephone** | +86-18575550440 |
| **网址**<br>**Website** | / |
| **邮箱**<br>**E-mail** | like@szshuori.com |
| **紧急电话号码**<br>**Company Emergency Phone Number** | +86-18575550440 |

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## 2. 危险性概述
## Hazards identification

**分类** 锂离子电池
**Classification** LITHIUM ION BATTERIES
**危险说明** 无损坏且正常使用情况下无危险。
**Hazard statement** No dangerous in normal use & without damage,

**泄漏的内部电池材料引起的危害和预防说明如下**
**Hazards caused by spilled internal cell materials and precautionary statements as following:**

| 分类 Classification | | 标签 Labelling | | | | 危害说明代码 Hazard statement codes |
|---|---|---|---|---|---|---|
| 危害种类 Hazard class | 危害类别 Hazard category | 象形图 Pictogram: 全球统一制度 GHS | 象形图 Pictogram: 联合国规章范本 UN Model Regulations | 信号词 Signal word | 危害说明 Hazard statement | |
| 吸入危害 Aspiration hazard | 2 |  | 不要求 Not required | 警告 Warning | 吞咽及进入呼吸道可能有害 May be harmful if swallowed and enters airways | H305 |
| 急毒性 Acute toxicity | 3 口服 Oral |  | 不要求 Not required | 警告 Warning | 吞咽有害 Harmful if swallowed | H302 |
| | 皮肤 Dermal | | | | 皮肤接触有害 Harmful in contact with skin | H312 |
| | 吸入 Inhalation | | | | 吸入有害 Harmful if inhaled | H332 |
| 皮肤腐蚀/刺激 Skin corrosion/ irritation | 2 |  | 不要求 Not required | 警告 Warning | 造成皮肤刺激 Causes skin irritation | H315 |
| 严重眼损伤/眼刺激 Serious eye damage/eye irritation | 2/2A |  | 不要求 Not required | 警告 Warning | 造成严重眼刺激 Causes serious eye irritation | H319 |
| 皮肤致敏物 Skin sensitization | 1、1A[a]、1B[a] |  | 不要求 Not required | 警告 Warning | 可引起皮肤过敏反应 May cause an allergic skin reaction | H317 |

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|---|---|---|---|---|---|---|
| 皮肤腐蚀/刺激<br>Skin corrosion/ irritation | 1<br>1A、1B、1C[a] |  |  | 危险<br>Danger | 造成严重皮肤灼伤和眼损伤<br>Causes severe skin burns and eye damage | H314 |
| 严重眼损伤/眼刺激<br>Serious eye damage/eye irritation | 1 |  | 不要求<br>Not required | 危险<br>Danger | 造成严重眼损伤<br>Causes serious eye damage | H318 |

**备注Note：**

a 在掌握充分数据且主管部门要求的情况下，可划分子类别。

a - categories may be applied where data are sufficient and where required by a competent authority.

## 3. 成分/组成信息
## Ingredients/Composition Information

纯品 ☐ 混合物 ☒

Pure chemical ☐ Mixture ☒

| 化学名称<br>Chemical name | CAS号<br>CAS No. | 重量含量（%）<br>Weight-% | 备注<br>Remark |
|---|---|---|---|
| 磷酸铁锂<br>Lithium iron phosphate ($LiFePO_4$) | 15365-14-7 | 20-40 | - |
| 六氟磷酸锂<br>Lithium hexafluorophosphate | 21324-40-3 | 10-20 | - |
| 铝<br>Aluminum | 7429-90-5 | 10-20 | - |
| 石墨<br>Graphite | 7782-42-5 | 10-20 | - |
| 铜<br>Copper | 7440-50-8 | 7-13 | - |
| 聚氯乙烯<br>Poly(vinyl chloride) | 9002-86-2 | 1-5 | - |

## 4. 急救措施
## First aid measures

**正常环境条件下，眼睛和皮肤接触锂离子电池不会产生危害。在内部有害物质漏出的情况，如果身体部位接触到这些物质，应采取以下措施：**

**The lithium ion batteries are not hazardous with eye and skin contact under normal circumstance. In case of internal hazardous substance leaking an hazardous substance, following measures should be taken if body parts contact with these substance:**

**皮肤接触：**皮肤接触后马上用肥皂和大量清水冲洗皮肤

**After Skin Contact:** In case of contact, immediately wash skin with soap and copious amounts of water.

**眼睛接触：**提起眼皮用清水冲洗15分钟，立即就医。

**After Eye Contact:** In case of contact, flush eyes with clean water for 15 minutes while lifting eyelids. Get prompt medical attention.
**吸入：**如有吸入，迅速脱离现场至空气新鲜处。如果停止呼吸，进行人工呼吸。如果呼吸困难，供给氧气。
**After Inhalation:** If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
**食入：**如有知觉用水冲洗口腔，就医。
**After Ingestion:** If swallowed, wash out mouth with water provided person is conscious. Call a physician.

## 5. 消防措施
## Fire-fighting measures

**危险特性：在**火灾时可释放有害浓烟、气体或者蒸汽。
**Characteristics of Hazard:** Toxic fumes; gases or vapors may evolve on burning.
**有害燃烧产物：**一氧化碳和二氧化碳、HF、氟磷化物
**Hazardous Combustion Products:** CO, CO2, HF, phosphorus fluoride.
**灭火方法及灭火剂：**对锂离子电池，大量冷水是一个有效的灭火剂。
不要使用温或热水。不要使用哈龙类灭火材料。可使用干粉、沙、土。
**Fire-extinguishing Methods and Extinguishing Media:** Copious amounts of cold water are an effective extinguishing medium for lithium-ion batteries.
Don' t use warm or hot water. Don' t use Halon type extinguishing material. Dry powder, sand and earth might be used.
**灭火注意事项：**消防人员须佩戴防毒面具、穿全身消防服
**Attention in Fire-extinguishing:** The Firemen should put on antigas masks and full fire-fighting suits.

## 6. 泄漏应急处理
## Accidental release measures

**为防止电池材料泄漏或释放采取的措施**
如果电池内部材料泄漏，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，将泄漏电池放进塑料袋中，然后放进钢制容器。避免皮肤和眼睛接触或吸入有害气体。
**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. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

## 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、破裂或泄漏等事故。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与阳光中。
**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 circuit or install with incorrect polarity.

## 8. 接触控制和个人防护
## Exposure control and 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.

## 9.理化特性
## Physical and chemical properties

**外形：**长方体
**Appearance:** Cuboid
**颜色：**白色
**Color:** White
**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.
**闪点：**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：**常温常压下稳定
**Stability:** Stable under normal temperatures and pressures.
**禁配物：**氧化剂
**Incompatibility:** oxidizing agents
**避免接触的条件：**热和明火、短路和水
**Conditions to Avoid:** Heat and open flame, short circuit, and water
**聚合危害：**不会发生
**Hazardous polymerization:** Will not occur
**分解产物：**一氧化碳、二氧化碳、HF、氟磷化物
**Decomposition Products:** CO, CO2, HF, phosphorus fluoride

## 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
## Waste Disposal

**废物处理应为：**
回收应符合适用的地区和国家法规，这些法规可能因国家而异。
**Waste disposal should read:**
Recycling should be in accordance with the applicable Regional & National regulations which may vary from country to country.

**废物处理注意事项：**
不要将电池作为正常废物进行处理。请勿焚烧、焚烧或置于火中。请勿刺穿、解剖或挤压。
**Attention for waste disposal: should read:**
Do NOT dispose of batteries as normal waste. Do NOT incinerate, burn or place into a fire. Do NOT pierce, dissect or crush.

## 14. 运输信息
## Transport Information

| | |
|---|---|
| **UN编号**<br>**UN No.** | UN 3480，UN 3481 |
| **运输专用名称**<br>**Proper Shipping Name** | 锂离子电池（包括锂离子聚合物电池）<br>Lithium ion batteries (Including lithium ion polymer batteries) or;<br>设备里内含锂离子电池（包括锂离子聚合物电池）<br>Lithium ion batteries contained in equipment (Including lithium ion polymer batteries) or;<br>锂离子电池和设备包装在一起（包括锂离子聚合物电池）<br>Lithium ion batteries packed with equipment (Including lithium ion polymer batteries) |
| **包装标志**<br>**Labels for Package** | 第9类<br>Class 9 |
| **EmS编号**<br>**EmS No** | F-A, S-I |

| | |
|---|---|
| **国际民间航空组织/国际航空运输协会：**<br>**ICAO / IATA:** | 可根据民用航空组织（ICAO）, TI 或国际航空运输协会（IATA）, DGR 65th (2024版）包装说明(PI) 965 Section IA, (PI) 966 Section I和(PI) 967 Section I 相关规定进行空运。<br>Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 965 Section IA, PI 966 Section I and PI 967 Section I appropriate of IATA DGR 65th (2024 Edition) for transportation. |
| **国际海运危险货物规则：**<br>**IMDG CODE:** | 《国际海运危险货物规则》 (IMDG Code 41-22)。<br>《International Maritime Dangerous Goods》Code (IMDG Code 41-22) . |
| **国际危险货物道路运输欧洲协定：**<br>**ADR:** | 《国际危险货物道路运输欧洲协定》 (ADR 2023)。<br>《European Agreement concerning the International Carriage of Dangerous Goods by Road》(ADR 2023). |
| **国际危险货物铁路运输欧洲协定：**<br>**RID:** | 《国际危险货物铁路运输欧洲协定》 (RID 2023)。<br>《Regulations concerning the International Carriage of Dangerous Goods by Rail》(RID 2023). |
| -- | |
| 本报告所述锂电池货物已经通过联合国《试验与标准手册》第38.3 节的测试。<br>The lithium battery goods described in this report has passed the testing in Section 38.3 of the United Nations Manual of Tests and Standards. | |

## 15. 法规信息
## Regulatory Information

**法规信息**

**Regulatory information**

《危险物品规则》
《Dangerous Goods Regulations》
《对危险货物运输的有关规定的建议》
《Recommendation on the Transport of Dangerous Goods Model Regulations》
《国际海运危险货物规则》
《International Maritime Dangerous Goods》
《危险品安全运输技术指令》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《危险货物分类和品名编号》
《Classification and code of dangerous Goods》
《职业安全卫生法》
《Occupational Safety and Health Act》(OSHA)
《有毒物质控制法》
《Toxic Substance Control Act》(TSCA)
《消费产品安全法》
《Consumer Product Safety Act》(CPSA)
《联邦环境污染控制法》
《Federal Environmental Pollution Control Act》(FEPCA)
《石油污染法案》
《The Oil Pollution Act》(OPA)
《超级基金修正案和再授权法案III(302/311/312/313)》
《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》(SARA)
《资源保护及恢复法案》
《Resource Conservation and Recovery Act》(RCRA)
《安全饮用水法》
《Safety Drinking Water Act》(CWA)
《加州65提案》
《California Proposition 65》
《美国联邦法规》
《Code of Federal Regulations》(CFR)
根据所有联邦、州和地方法律。
In according with all Federal, State and local laws.

## 16. 其他信息
## Other Information

**参考文献：**中华人民共和国国家标准（GB/T 16483-2008）化学品安全技术说明书内容和项目顺序、中华人民共和国国家标准（GB/T 17519-2013）化学品安全技术说明书编写指南。
**Reference:** National standard of People's Republic of China. (GB/T 16483-2008) Safety data sheet for chemical products-Content and order of sections, National standard of People's Republic of China. (GB/T 17519-2013) Guidance on the compilation of safety data sheet for chemical products.

上述信息是根据我们目前的知识状况撰写，我们尽力追求其准确性。然而针对该信息我们不作任何适销性的承诺，亦不作其他任何明示的或暗示的承诺。我们对该信息的使用不负任何责任，使用者请根据应用需求，自行判断其可用性。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，广东科正技术服务有限公司不承担任何责任。
The above information is written based on our current knowledge and we strive for its accuracy. However, we make no promises of merchantability or any other express or implied promises regarding this information. We are not responsible for the use of this information, and users are advised to assess its availability based on application requirements.
Users should carefully read this document and use the battery according to the correct method. KSIGN(Guangdong) Testing Co., Ltd. shall not be responsible for any damage or loss caused by improper use of the battery.

**报告结束**
**--End of Report--**