



化学品安全数据单 (SDS) 编制报告

编号: 240100320443440C

日期: 2024年2月7日



| | | | |
|--------------------------|---|----|--|
| 样品名称 | EFIS-D 风冷光储一体柜 EFIS-D-W100/215 | | |
| 申请单位 | 弘正储能（上海）能源科技有限公司 | | |
| 供应商 | 弘正储能（上海）能源科技有限公司 | | |
| 样品组分 | 磷酸亚铁锂: 26.5%; 石墨: 12.5%; 电解液: 12.95%; 六氟磷酸锂: 1.95%; 镍: 1.1%; 铝: 2%; 聚丙烯: 2.1%; 铜: 0.98%; 铁: 39.8% | | |
| 编制依据 | 联合国《全球化学品统一分类和标签制度》(GHS) 第十修订版 | | |
| 化学品安全数据单 (SDS) 请参见本报告附件。 | | | |
| 编制 | 孙越越 | 签发 | For and on behalf of CCIC JIANGSU CO., LTD. 中国检验认证集团江苏有限公司 王珍 |

说明: 本报告有效期至联合国 GHS 第十一修订版实施之前。

4 授权签字人 Authorized Signature (s)



EFIS-D 风冷光储一体柜 EFIS-D-W100/215

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第1部分 化学品及企业标识

> 产品标识

| | |
|--------|--------------------------------------|
| 产品中文名称 | EFIS-D 风冷光储一体柜 EFIS-D-W100/215 |
| 产品英文名称 | Smart PV ESS Cabinet EFIS-D-W100/215 |
| 别名 | - |

> 产品推荐和限制用途

| | |
|---------|---------|
| 产品的推荐用途 | 请咨询生产商。 |
| 产品的限制用途 | 请咨询生产商。 |

> 安全数据单提供者信息

| | |
|----------|----------------------|
| 申请单位名称 | 弘正储能（上海）能源科技有限公司 |
| 申请单位地址 | 上海市奉贤区望园路 1888 弄 1 幢 |
| 申请单位邮编 | 201400 |
| 申请单位联系电话 | +86-21-57104833 |
| 申请单位传真号码 | — |
| 申请单位电子邮箱 | info@hoenergy.com.cn |
| 供应商名称 | 弘正储能（上海）能源科技有限公司 |
| 供应商地址 | 上海市奉贤区望园路 1888 弄 1 幢 |
| 供应商邮编 | 201400 |
| 供应商联系电话 | +86-21-57104833 |
| 供应商传真号码 | — |
| 供应商电子邮箱 | info@hoenergy.com.cn |

> 企业应急电话

| | |
|--------|------------------|
| 企业应急电话 | +86-400-103-2166 |
|--------|------------------|

第2部分 危险性概述

按照联合国 GHS（第十修订版）规定，该产品所属危险性类别及标签要素如下：

> GHS 危险性类别

该产品符合“物品”的定义。在全球化学品统一分类和标签制度（GHS）中，美国职业安全健康管理署“危险公示标准”（29 CFR 1910.1200）或类似定义界定的“物品”，不属于这一制度的范围。[Rev.10 (2023) Part 1.3.2.1.1]

> GHS 标签要素

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象形图 不适用

信号词 不适用

> 危险性说明

不适用

> 防范说明

预防措施

不要打开或拆卸电池。
不要暴露于高温或明火。
不要混合使用不同大小、化学性质或类型的电池。
避免使用外力撞击电池。

事故响应

不适用

安全储存

储存在阴凉、干燥、通风的库房中。

废弃处置

按照地方/区域/国家/国际规章处置内装物/容器。

第 3 部分 成分/组成信息

| 组分 | CAS No. | EC No. | 含量 (质量分数, %) |
|-------|------------|-----------|--------------|
| 磷酸亚铁锂 | 15365-14-7 | - | 26.5 |
| 石墨 | 7782-42-5 | 231-955-3 | 12.5 |
| 电解液 | - | - | 12.95 |
| 六氟磷酸锂 | 21324-40-3 | 244-334-7 | 1.95 |
| 镍 | 7440-02-0 | 231-111-4 | 1.1 |
| 铝 | 7429-90-5 | 231-072-3 | 2 |
| 聚丙烯 | 9003-07-0 | - | 2.1 |
| 铜 | 7440-50-8 | 231-159-6 | 0.98 |
| 铁 | 7439-89-6 | 231-096-4 | 39.8 |

第 4 部分 急救措施

> 急救措施描述



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| | |
|---------|---|
| 一般性建议 | 急救措施通常是需要的, 请将本 SDS 出示给到达现场的医生。 |
| 眼睛接触 | 用大量水彻底冲洗至少 15 分钟。如有不适, 就医。 |
| 皮肤接触 | 立即脱去污染的衣物。用大量肥皂水和清水冲洗皮肤。如有不适, 就医。 |
| 食入 | 禁止催吐, 切勿给失去知觉者从嘴里喂食任何东西。立即呼叫医生或中毒控制中心。 |
| 吸入 | 立即将患者移到新鲜空气处, 保持呼吸畅通。如果呼吸困难, 给予吸氧。如患者食入或吸入本物质, 不得进行口对口人工呼吸。如果呼吸停止。立即进行心肺复苏术。立即就医。 |
| 急救人员的防护 | 确保医护人员了解产品的危害特性, 并采取自身防护措施, 以保护自己和防止污染传播。 |

> 最重要的症状和影响, 急性的和滞后的

- 有限的证据表明反复或长期职业接触可能会产生涉及器官或生化系统累积性的健康影响。

> 紧急医疗处理和特殊处理的说明

- 根据出现的症状进行针对性处理。
- 注意症状可能会出现延迟。

第 5 部分 消防措施

> 灭火介质

| | |
|----------|-----------------------------|
| 合适的灭火介质 | 干粉、二氧化碳、水喷雾或耐醇泡沫。 |
| 不合适的灭火介质 | 避免用太强烈的水汽灭火, 因为它可能会使火苗蔓延分散。 |

> 源于此物质或混合物的特别危害

- 加热时, 容器可能爆炸。
- 暴露于火中的容器可能会通过压力安全阀泄漏出内容物。
- 受热或接触火焰可能会产生膨胀或爆炸性分解。

> 对消防人员的建议

- 灭火时, 应佩戴呼吸面具 ((符合 MSHA/NIOSH 要求的或相当的)) 并穿上全身防护服。
- 在安全距离处、有充足防护的情况下灭火。
- 防止消防水污染地表和地下水系统。

第 6 部分 泄漏应急处理

> 作业人员防护措施, 防护设备和紧急处理程序

- 保证充分的通风。清除所有点火源。
- 迅速将人员撤离到安全区域, 远离泄漏区域并处于上风方向。



EFIS-D 风冷光储一体机 EFIS-D-W100/215

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3 使用个人防护装备。避免吸入蒸气、烟雾、气体或粉尘。

> 环境保护措施

- 在确保安全的情况下, 采取措施防止进一步的泄漏或溢出。
- 避免排放到周围环境中。

> 泄漏化学品的收容、清除方法及所使用的处置材料

- 少量泄漏时, 可采用干砂或惰性吸附材料吸收泄漏物, 大量泄漏时需筑堤控制。
- 附着物或收集物应存放在合适的密闭容器中, 并根据当地相关法律法规废弃处置。
- 清除所有点火源, 并采用防火花工具和防暴设备。

第7部分 搬运和存放

> 安全搬运的防备措施

- 在通风良好处进行操作。
- 穿戴合适的个人防护用具。
- 避免接触皮肤和进入眼睛。
- 远离热源、火花、明火和热表面。
- 采取措施防止静电积累。

> 安全存放的条件, 包括任何不相容性

- 保持容器密闭。
- 储存在干燥、阴凉和通风处。
- 远离热源、火花、明火和热表面。
- 存储于远离不相容材料和食品容器的地方。

第8部分 接触控制/人身防护

> 控制参数

职业接触限值

| 组分 | 国家/地区 | 职业接触限值 (8h) | | 职业接触限值 (短时间) | |
|-----------------|---------|-------------|-------------------|--------------|-------------------|
| | | ppm | mg/m ³ | ppm | mg/m ³ |
| 石墨 7782-42-5 | 美国-OSHA | - | 15 | - | - |
| | 韩国 | - | 2 | - | - |
| | 爱尔兰 | - | 10 | - | - |
| | 德国(DFG) | - | 4 | - | - |
| | 丹麦 | - | 2.5 | - | 5 |

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| | | | | | |
|----------------|---------|---|-------|---|------|
| 镍 7440-02-0 | 澳大利亚 | - | 3 (4) | - | - |
| | 美国-OSHA | - | 1 | - | - |
| | 韩国 | - | 1 | - | - |
| | 爱尔兰 | - | 0.5 | - | - |
| | 匈牙利 | - | 0.1 | - | 0.1 |
| | 丹麦 | - | 0.05 | - | 0.1 |
| | 澳大利亚 | - | 1 | - | - |
| 铝 7429-90-5 | 美国-OSHA | - | 15 | - | - |
| | 韩国 | - | 10 | - | - |
| | 爱尔兰 | - | 1 | - | - |
| | 德国(DFG) | - | 4 | - | - |
| | 丹麦 | - | 5 | - | 10 |
| | 澳大利亚 | - | 10 | - | - |
| 铜 7440-50-8 | 荷兰 | - | 0.1 | - | - |
| | 波兰 | - | 0.2 | - | - |
| | 拉脱维亚 | - | 0.5 | - | 1 |
| | 德国(DFG) | - | 0.01 | - | 0.02 |

生物限值

| 组分 | 来源 | 生物监测指标 | 生物限值 | 采样时间 | 备注 |
|-------|-------------|--------|-------|------|----|
| 六氟磷酸锂 | 欧盟职业接触限制委员会 | 氟/尿 | 8mg/L | 工作班末 | |

监测方法

- EN 14042 工作场所空气 用于评估暴露于化学或生物试剂的程序指南。
- GBZ/T 160 工作场所空气有毒物质测定 (系列有效标准) 以及 GBZ/T 300 工作场所空气有毒物质测定 (系列标准)。

> 工程控制

- 保持充分的通风, 特别在封闭区内。
- 确保在工作场所附近有洗眼和淋浴设施。
- 使用防爆电器、通风、照明等设备。
- 设置应急撤离通道和必要的泄险区。

> 个人防护装备

眼睛防护

佩戴化学护目镜 (符合欧盟 EN 166 或美国 NIOSH 标准)。

手部防护

戴化学防护手套 (例如丁基橡胶手套)。建议选择经过欧盟 EN 374、美国 US F739 或 AS/NZS 2161.1 标准测试的防护手套。

呼吸系统防护

如果蒸气浓度超过职业接触限值或发生刺激等症状时, 请使用全面罩式多功能防毒面具 (US) 或 AXBEK 型 (EN 14387) 防毒面具筒。

皮肤和身体防护

穿阻燃防静电防护服和防静电的防护靴。



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第9部分 理化特性

外观与性状: 风冷光储一体柜(EFIS-D-W100/215, 768V 280Ah 215000Wh),由 15 个型号为 iBAT-WM-14.33H (51.2V 280Ah 14.33kWh)的电池模块串联而成, 单独包装

气味: 无资料

气味阈值: 无资料

熔点/凝固点(°C): 无资料

闪点(°C)(闭杯): 不适用

易燃性: 无资料

蒸汽压力(KPa): 不适用

相对密度(水=1): 无资料

正辛醇/水分配系数: 无资料

分解温度(°C): 无资料

颗粒特征: 无资料

pH 值: 无资料

初始沸点和沸腾范围(°C): 无资料

蒸发速率: 不适用

爆炸上限/下限[% (v/v)]: 上限: 无资料; 下限: 无资料

相对蒸气密度(空气=1): 不适用

可溶性: 无资料

自燃温度(°C): 无资料

运动粘度(mm²/s): 不适用

临界温度(°C): 不适用

第10部分 稳定性和反应性

反应性

与不相容物质接触可发生分解或其它化学反应。

化学稳定性

在正确的使用和存储条件下是稳定的。

危险反应的可能性

与金属乙炔化合物的混合物在加热时, 发生燃烧或白炽化。与卤素、卤间化合物及其他强氧化剂发生猛烈反应, 或引起爆炸。超细粉末在空气室温下就会自燃。

应避免的条件

不相容物质, 热、火焰和火花。

不相容材料

金属乙炔化合物、卤素及卤间化合物、卤素的氧化物、硝酸、氧化氮、硝酸盐、亚硝酸盐、卤素含氧酸盐、铬酸盐、高锰酸盐、无机过氧化物、金属氧化物和过氧甲酸。卤素、卤间化合物、强氧化剂、非金属、水和酸。氧化剂、卤素、卤间化合物和汞。

危险的分解产物

在正常的储存和使用条件下, 不会产生危险的分解产物。

第11部分 毒理学信息

> 急性毒性

| 组分 | CAS No. | LD ₅₀ (经口) | LD ₅₀ (经皮) | LC ₅₀ (吸入, 4h) |
|-------|------------|-----------------------|-----------------------|---------------------------|
| 铁 | 7439-89-6 | 30000mg/kg(大鼠) | 无资料 | 无资料 |
| 六氟磷酸锂 | 21324-40-3 | 50~300mg/kg(大鼠) | 275mg/kg(大鼠) | 无资料 |



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> 皮肤腐蚀/刺激

无资料

> 严重眼损伤/刺激

无资料

> 皮肤致敏

无资料

> 呼吸致敏

无资料

> 生殖细胞致突变性

无资料

> 致癌性

| ID | CAS No. | 组分 | IARC | NTP |
|----|------------|-------|------|-----|
| 1 | 15365-14-7 | 磷酸亚铁锂 | 未列入 | 未列入 |
| 2 | 7782-42-5 | 石墨 | 未列入 | 未列入 |
| 3 | - | 电解液 | 未列入 | 未列入 |
| 4 | 21324-40-3 | 六氟磷酸锂 | 未列入 | 未列入 |
| 5 | 7440-02-0 | 镍 | 类别2B | 未列入 |
| 6 | 7429-90-5 | 铝 | 未列入 | 未列入 |
| 7 | 9003-07-0 | 聚丙烯 | 类别3 | 未列入 |
| 8 | 7440-50-8 | 铜 | 未列入 | 未列入 |
| 9 | 7439-89-6 | 铁 | 未列入 | 未列入 |

> 生殖毒性

无资料

> 生殖毒性附加危害

无资料

> 特异性靶器官系统毒性-单次接触

无资料

> 特异性靶器官系统毒性-反复接触

无资料



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> 吸入危害

无资料

第 12 部分 生态学信息

> 急性水生毒性

| 组分 | CAS No. | 鱼类 | 甲壳纲动物 | 藻类/水生植物 |
|----|-----------|---------------------------------------|-----------------------------------|-----------------------------------|
| 铝 | 7429-90-5 | LC ₅₀ : 1.55mg/L (96h)(鱼) | 无资料 | 无资料 |
| 镍 | 7440-02-0 | LC ₅₀ : 40mg/L (96h)(鱼) | EC ₅₀ : 1mg/L (48h) | 无资料 |
| 铁 | 7439-89-6 | LC ₅₀ : 1.29mg/L (96h)(鱼) | 无资料 | 无资料 |
| 铜 | 7440-50-8 | LC ₅₀ : 0.665mg/L (96h)(鱼) | EC ₅₀ : 0.02mg/L (48h) | ErC ₅₀ : 7.9mg/L (96h) |

> 慢性水生毒性

无资料

> 其他信息

持久性和降解性 无资料

生物富集或生物积累性 无资料

土壤中的迁移性 无资料

PBT 和 vPvB 的结果评价

磷酸亚铁锂不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

石墨不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

六氟磷酸锂不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

镍不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

铝不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

聚丙烯不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

铜不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

铁不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

第 13 部分 废弃处置

废弃化学品 污染包装物

处置之前应参阅国家和地方有关法规。

包装物清空后仍可能存在残留物危害, 应远离热和火源, 如有可能返还给供应商循环使用。

废弃注意事项

请参阅废弃化学品和污染包装物部分。

第 14 部分 运输信息



EFIS-D 风冷光储一体柜 EFIS-D-W100/215

化学品安全数据单

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编制依据: GHS 第十修订版

SDS

运输标签和标记



海洋污染物

否

联合国危险货物编号
(UN No.)

3480

联合国正确运输名称

锂离子电池组 (包括聚合物锂离子电池)

运输主要危险类别

9

运输次要危险类别

无

包装类别

根据包装导则 P903 办理

报告备注

根据联合国《关于危险货物运输的建议书 规章范本》规定, 锂电池(组)需通过 UN38.3 测试, 才能按照本报告分类结论进行运输。

第 15 部分 法规信息

> 国际化学品名录

| 组分 | EINECS | TSCA | DSL | IECSC | NZIoC | PICCS | KECL | AICS | ENCS |
|-------|--------|------|-----|-------|-------|-------|------|------|------|
| 磷酸亚铁锂 | √ | √ | √ | × | × | × | √ | × | × |
| 石墨 | √ | √ | √ | √ | √ | √ | √ | √ | × |
| 电解液 | × | × | × | × | × | × | × | × | × |
| 六氟磷酸锂 | √ | √ | × | √ | × | √ | √ | √ | × |
| 镍 | √ | √ | √ | √ | √ | √ | √ | √ | × |
| 铝 | √ | √ | √ | √ | √ | √ | √ | √ | × |
| 聚丙烯 | × | √ | √ | √ | √ | √ | √ | √ | √ |
| 铜 | √ | √ | √ | √ | √ | √ | √ | √ | × |
| 铁 | √ | √ | √ | √ | √ | √ | √ | √ | × |

【EINECS】 欧洲现有化学物质名录

【TSCA】 美国 TSCA 化学物质名录

【DSL】 加拿大国内化学物质名录

【IECSC】 中国现有化学物质名录

【NZIoC】 新西兰现有暂用的化学物质名录

【PICCS】 菲律宾化学品和化学物质名录

【KECL】 韩国现有化学物质名录

【AICS】 澳大利亚现有化学品物质名录

【ENCS】 日本现有和新化学物质名录

注



EFIS-D 风冷光储一体柜 EFIS-D-W100/215

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“√”表示该物质列入法规

“×”表示暂无资料或未列入法规

第 16 部分 其他信息

| | |
|------|-----------|
| 编制日期 | 2024年2月7日 |
| 修订日期 | 2024年2月7日 |
| 修订原因 | - |

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DESIGN REPORT OF SAFETY DATA SHEET

No.: 240100320443440E

Date: Feb.7,2024



| | | | |
|--|---|-----------------|---|
| Name of the sample | Smart PV ESS Cabinet EFIS-D-W100/215 | | |
| Applicant | Shanghai Hoenergy Power Technology Co.,LTD | | |
| Supplier | Shanghai Hoenergy Power Technology Co.,LTD | | |
| Composition of the sample | Phosphoric acid,iron(2+) lithium salt (1:1:1): 26.5%; Graphite: 12.5%; Electrolyte : 12.95%; Lithium hexafluorophosphate: 1.95%; Nickel: 1.1%; Aluminium: 2%; Polypropylene: 2.1%; Copper: 0.98%; Iron: 39.8% | | |
| Warranty of Design | GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Tenth revised edition | | |
| Design Result of SDS please see next page. | | | |
| Designer | 孙越越 | Approver | <p><i>For and on behalf of</i> CCIC JIANGSU CO., LTD. 中国检验认证集团江苏有限公司</p> <p>王珍 4 授权签字人 Authorized Signature(s)</p> |

Notes: This SDS is valid before the implementation of the Eleventh revised edition GHS.



Smart PV ESS Cabinet EFIS-D-W100/215

SAFETY DATA SHEET

No.: 240100320443440E

Warranty of Design: GHS (Tenth Revised Edition)

SDS

Date: Feb.7,2024

Section 1 Product and Company Identification

> Product Identifier

Product Name Smart PV ESS Cabinet EFIS-D-W100/215
Synonyms -

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses Please consult manufacturer.
Uses Advised Against Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name Shanghai Hoenergy Power Technology Co.,LTD
Application Address Building 1, 1888 Wangyuan Road, Fengxian District, Shanghai, P.R.China
Applicant Post Code 201400
Applicant Telephone +86-21-57104833
Applicant Fax —
Applicant E-mail info@hoenergy.com.cn
Supplier Name Shanghai Hoenergy Power Technology Co.,LTD
Supplier Address Building 1, 1888 Wangyuan Road, Fengxian District, Shanghai, P.R.China
Supplier Post Code 201400
Supplier Telephone +86-21-57104833
Supplier Fax —
Supplier E-mail info@hoenergy.com.cn

> Emergency Phone Number

Emergency Phone Number +86-400-103-2166

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the tenth revised edition):

> GHS Hazard Class

This product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar definition, are outside the scope of the system. [Rev.10 (2023) Part 1.3.2.1.1]



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> GHS Label Elements

Pictogram Not applicable

Signal Word **Not applicable**

> Hazard Statements

Not applicable

> Precautionary Statements

Prevention

Do not open or disassemble.
Do not expose to high temperatures or open fire.
Do not mix with batteries of varying sizes, chemistries or types.
Avoid using external impact battery.

Response

Not applicable

Storage

Store under roof in cool, dry, well-ventilated areas.

Disposal

Dispose of contents/container in accordance with local/regional/national/ international regulations.

Section 3 Composition/Information on Ingredients

| Component | CAS No. | EC No. | Concentration (weight percent, %) |
|---|------------|-----------|-----------------------------------|
| Phosphoric acid,iron(2+) lithium salt (1:1:1) | 15365-14-7 | - | 26.5 |
| Graphite | 7782-42-5 | 231-955-3 | 12.5 |
| Electrolyte | - | - | 12.95 |
| Lithium hexafluorophosphate | 21324-40-3 | 244-334-7 | 1.95 |
| Nickel | 7440-02-0 | 231-111-4 | 1.1 |
| Aluminium | 7429-90-5 | 231-072-3 | 2 |
| Polypropylene | 9003-07-0 | - | 2.1 |
| Copper | 7440-50-8 | 231-159-6 | 0.98 |
| Iron | 7439-89-6 | 231-096-4 | 39.8 |

Section 4 First Aid Measures



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> Description of First Aid Measures

| | |
|-----------------------------------|---|
| General Advice | Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance. |
| Eye Contact | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable. |
| Skin Contact | Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable. |
| Ingestion | Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately. |
| Inhalation | Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately. |
| Protecting of First-aiders | Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination. |

> Most Important Symptoms and Effects, both Acute and Delayed

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

| | |
|---------------------------------------|--|
| Suitable Extinguishing Media | Dry chemical, carbon dioxide, water spray, alcohol-resistant foam. |
| Unsuitable Extinguishing Media | Do not use a solid water stream as it may scatter or spread fire. |

> Specific Hazards Arising from the Substance or Mixture

- 1 Containers may explode when heated.
- 2 Fire exposed containers may vent contents through pressure relief valves.
- 3 May expansion or decompose explosively when heated or involved in fire.

> Advice for Firefighters

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 Accidental Release Measure



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> Personal Precautions, Protective Equipment and Emergency Procedures

- 1 Ensure adequate ventilation. Remove all sources of ignition.
- 2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

- 1 Handling is performed in a well ventilated place.
- 2 Wear suitable protective equipment.
- 3 Avoid contact with skin and eyes.
- 4 Keep away from heat/sparks/open flames/ hot surfaces.
- 5 Take precautionary measures against static discharges.

> Precautions for Storage

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

| Component | Country/Region | Limit Value - Eight Hours | | Limit Value - Short Term | |
|-----------|----------------|---------------------------|-------------------|--------------------------|-------------------|
| | | ppm | mg/m ³ | ppm | mg/m ³ |
| Graphite | USA - OSHA | - | 15 | - | - |



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| | | | | | |
|------------------------|-----------------|---|-------|---|------|
| 7782-42-5 | South Korea | - | 2 | - | - |
| | Ireland | - | 10 | - | - |
| | Germany (DFG) | - | 4 | - | - |
| | Denmark | - | 2.5 | - | 5 |
| | Australia | - | 3 (4) | - | - |
| Nickel 7440-02-0 | USA - OSHA | - | 1 | - | - |
| | South Korea | - | 1 | - | - |
| | Ireland | - | 0.5 | - | - |
| | Hungary | - | 0.1 | - | 0.1 |
| | Denmark | - | 0.05 | - | 0.1 |
| | Australia | - | 1 | - | - |
| Aluminium 7429-90-5 | USA - OSHA | - | 15 | - | - |
| | South Korea | - | 10 | - | - |
| | Ireland | - | 1 | - | - |
| | Germany (DFG) | - | 4 | - | - |
| | Denmark | - | 5 | - | 10 |
| | Australia | - | 10 | - | - |
| Copper 7440-50-8 | The Netherlands | - | 0.1 | - | - |
| | Poland | - | 0.2 | - | - |
| | Latvia | - | 0.5 | - | 1 |
| | Germany (DFG) | - | 0.01 | - | 0.02 |

Biological Limit Values

| Component | Source | Biological monitoring index | Biological limits value | Sampling time | Remark |
|-----------------------------|-----------|-----------------------------|-------------------------|---------------|--------|
| Lithium hexafluorophosphate | SCOEL(EU) | Fluorine/urine | 8mg/L | end of shift | |

Monitoring Methods

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

> Engineering Controls

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

> Personal Protection Equipment



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| | |
|---------------------------------|--|
| Eye Protection | Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US). |
| Hand Protection | Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard. |
| Respiratory protection | If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges. |
| Skin and Body Protection | Wear fire/flame resistant/retardant clothing and antistatic boots. |

Section 9 Physical and Chemical Properties

| | |
|---|---|
| Appearance: Smart PV ESS Cabinet(EFIS-D-W100/215, 768V 280Ah 215000Wh), assembled from 15 battery modules(iBAT-WM-14.33H, 51.2V 280Ah 14.33kWh) in series, individually packaged | Odor: No information available |
| Odor Threshold: No information available | pH: No information available |
| Melting Point/Freezing Point (°C): No information available | Initial Boiling Point and Boiling Range (°C): No information available |
| Flash Point (°C)(Closed Cup): Not applicable | Evaporation Rate: Not applicable |
| Flammability: No information available | Upper/lower explosive limits[%(v/v)]: Upper limit: No information available; Lower limit: No information available |
| Vapor Pressure (KPa): Not applicable | Relative Vapour Density(Air=1): Not applicable |
| Relative Density(Water=1): No information available | Solubility: No information available |
| n-Octanol/Water Partition Coefficient: No information available | Auto-Ignition Temperature(°C): No information available |
| Decomposition Temperature (°C): No information available | Kinematic Viscosity (mm²/s): Not applicable |
| Particle characteristics: No information available | Critical Temperature(°C): Not applicable |

Section 10 Stability and Reactivity

| | |
|---|--|
| Reactivity | Contact with incompatible substances can cause decomposition or other chemical reactions. |
| Chemical Stability | Stable under proper operation and storage conditions. |
| Possibility of Hazardous Reactions | Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature. |
| Conditions to Avoid | Incompatible materials, heat, flame and spark. |
| Incompatible Materials | Metal acetylde, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong |



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Hazardous oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

| Component | CAS No. | LD ₅₀ (Oral) | LD ₅₀ (Dermal) | LC ₅₀ (Inhalation, 4h) |
|-----------------------------|------------|-------------------------|---------------------------|-----------------------------------|
| Iron | 7439-89-6 | 30000mg/kg(Rat) | No information available | No information available |
| Lithium hexafluorophosphate | 21324-40-3 | 50~300mg/kg(Rat) | 275mg/kg(Rat) | No information available |

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

| ID | CAS No. | Component | IARC | NTP |
|----|------------|---|-------------|------------|
| 1 | 15365-14-7 | Phosphoric acid,iron(2+) lithium salt (1:1:1) | Not Listed | Not Listed |
| 2 | 7782-42-5 | Graphite | Not Listed | Not Listed |
| 3 | - | Electrolyte | Not Listed | Not Listed |
| 4 | 21324-40-3 | Lithium hexafluorophosphate | Not Listed | Not Listed |
| 5 | 7440-02-0 | Nickel | Category 2B | Not Listed |
| 6 | 7429-90-5 | Aluminium | Not Listed | Not Listed |
| 7 | 9003-07-0 | Polypropylene | Category 3 | Not Listed |
| 8 | 7440-50-8 | Copper | Not Listed | Not Listed |



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| | | | | |
|---|-----------|------|------------|------------|
| 9 | 7439-89-6 | Iron | Not Listed | Not Listed |
|---|-----------|------|------------|------------|

> Reproductive Toxicity

No information available

> Reproductive Toxicity (Additional)

No information available

> STOT-Single Exposure

No information available

> STOT-Repeated Exposure

No information available

> Aspiration Hazard

No information available

Section 12 Ecological Information

> Acute Aquatic Toxicity

| Component | CAS No. | Fish | Crustaceans | Algae |
|-----------|-----------|--|-----------------------------------|-----------------------------------|
| Aluminium | 7429-90-5 | LC ₅₀ : 1.55mg/L (96h)(Fish) | No information available | No information available |
| Nickel | 7440-02-0 | LC ₅₀ : 40mg/L (96h)(Fish) | EC ₅₀ : 1mg/L (48h) | No information available |
| Iron | 7439-89-6 | LC ₅₀ : 1.29mg/L (96h)(Fish) | No information available | No information available |
| Copper | 7440-50-8 | LC ₅₀ : 0.665mg/L (96h)(Fish) | EC ₅₀ : 0.02mg/L (48h) | ErC ₅₀ : 7.9mg/L (96h) |

> Chronic Aquatic Toxicity

No information available

> Others

Persistence and Degradability No information available

Bioaccumulative Potential No information available

Mobility in Soil No information available

Results of PBT and vPvB Assessment

Phosphoric acid,iron(2+) lithium salt (1:1:1) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
Graphite does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.



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Lithium hexafluorophosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
 Nickel does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
 Aluminium does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
 Polypropylene does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
 Copper does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.
 Iron does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations

Waste Chemicals Contaminated Packaging Disposal Recommendations

Before disposal should refer to the relevant national and local laws and regulation. Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. Refer to Waste chemicals and Contaminated packaging.

Section 14 Transport Information

Transporting Label



Marine pollutant

No

UN Number

3480

UN Proper Shipping Name

LITHIUM ION BATTERIES(including lithium ion polymer batteries)

Transport Hazard Class

9

Transport Subsidiary Hazard Class

NONE

Packing Group

According to Packaging Instruction P903

Report remarks

According to United Nations Recommendations on the Transports of Dangerous Goods•Model Regulations, Lithium batteries(group) could be transported in accordance with the classification conclusions of this report when meet the requirements of UN38.3 test.

Section 15 Regulatory Information

> International Chemical Inventory

| Component | EINECS | TSCA | DSL | IECSC | NZIoC | PICCS | KECL | AICS | ENCS |
|---|--------|------|-----|-------|-------|-------|------|------|------|
| Phosphoric acid,iron(2+) lithium salt (1:1:1) | √ | √ | √ | × | × | × | √ | × | × |



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| | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|
| Graphite | √ | √ | √ | √ | √ | √ | √ | √ | × |
| Electrolyte | × | × | × | × | × | × | × | × | × |
| Lithium hexafluorophosphate | √ | √ | × | √ | × | √ | √ | √ | × |
| Nickel | √ | √ | √ | √ | √ | √ | √ | √ | × |
| Aluminium | √ | √ | √ | √ | √ | √ | √ | √ | × |
| Polypropylene | × | √ | √ | √ | √ | √ | √ | √ | √ |
| Copper | √ | √ | √ | √ | √ | √ | √ | √ | × |
| Iron | √ | √ | √ | √ | √ | √ | √ | √ | × |

- 【EINECS】 European Inventory of Existing Commercial Chemical Substances.
- 【TSCA】 United States Toxic Substances Control Act Inventory.
- 【DSL】 Canadian Domestic Substances List.
- 【IECSC】 China Inventory of Existing Chemical Substances.
- 【NZIoC】 New Zealand Inventory of Chemicals.
- 【PICCS】 Philippines Inventory of Chemicals and Chemical Substances.
- 【KECL】 Existing and Evaluated Chemical Substances.
- 【AICS】 Australia Inventory of Chemical Substances.
- 【ENCS】 Existing And New Chemical Substances.

Note

- “√” Indicates that the substance included in the regulations
- “×” That no data or included in the regulations

Section 16 Additional Information

Creation Date Feb.7,2024
Revision Date Feb.7,2024
Reason for Revision -

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 10th revised edition).The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.



Smart PV ESS Cabinet EFIS-D-W100/215

SAFETY DATA SHEET

No.: 240100320443440E

Warranty of Design: GHS (Tenth Revised Edition)

SDS

Date: Feb.7,2024



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1. The report is issued by CCIC according to the information of the chemicals and the information of its shipping provided by the applicant (shipper or his agent).
2. According to the demand of this SDS, CCIC requires the applicant to provide true and exact sample and data.
3. Information from applicant is the key of this SDS, so CCIC will not respond for the wrong of applicant.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
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