

MATERIAL SAFETY DATA SHEET

材料安全数据表

Report No.: TRES240227M002

Product
产品 Energy Storage Li-ion Battery
储能锂离子电池

Type/Model
型号 TRBM 2.5K-H

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Material Safety Data Sheet

材料安全数据表

SECTION 1 - CHEMICAL AND COMPANY IDENTIFICATION 第1节—化学品和公司标识	
Product 产品	Energy Storage Li-ion Battery 储能锂离子电池
Type/Model: 型号	TRBM 2.5K-H
Parameter 参数	50Ah ,2.5kWh
Company 公司	Trina Energy Storage Solutions (Jiangsu) Co ., Ltd 江苏天合储能有限公司
Address 地址	No .2 Tianhe Road , Trina PV Industrial Park , New District 213031 Changzhou , Jiangsu PEOPLE ' S REPUBLIC OF CHINA 江苏省常州市新北区天合光伏产业园天合路2号
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SECTION 2 - HAZARDS IDENTIFICATION 第2节—危害识别	
Classification 分类:	
Lithium batteries itself are classified to Class 9 Dangerous Goods, Miscellaneous dangerous substances and articles.	
锂电池本身被归类在第九类危险品——杂项危险物质和物品。	
This chemical is not considered hazardous by the Regulation (EC) No 1272/2008 (CLP). This product is an article which is a sealed battery and as such does not require an SDS per the Regulation (EC) No 1272/2008 (CLP) unless ruptured. The hazards indicated are for a ruptured battery.	
该化学品不被法规(EC)No.1272/2008(CLP)认为是危险的。本产品为密封电池，因此，除非破裂，不需要SDS (EC) No.1272/2008 (CLP)。以下提到的危险是电池破裂造成的。	
Acute toxicity – Oral 急性毒性-口服	Category 4 第4类
Acute toxicity - Dermal 急性毒性-皮肤	Category 4 第4类
Skin corrosion/irritation 皮肤腐蚀/刺激	Category 1B 第1B类
Serious eye damage/eye irritation 严重眼睛损失/眼睛刺激	Category 2 第2类
Skin sensitization 皮肤致敏	Category 1 第1类
Carcinogenicity 致癌性	Category 2 第2类
Specific target organ toxicity (repeated exposure) 特异性靶器官毒性(重复暴露)	Category 1 第1类
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Label elements 标签要素:

Signal Word信号词:

Danger 危险

Hazard Statements 风险声明

H302	Harmful if swallowed. 吞食有害
H312	Harmful in contact with skin. 与皮肤接触有害
H332	Harmful if inhaled. 吸入有害
H318	Causes serious eye damage. 对眼睛造成严重损害
H317	May cause an allergic skin reaction. 可能导致皮肤过敏反应
H350	May cause cancer. 可能致癌
H371	May cause damage to organs. 可能对器官造成损害
H355	May cause respiratory irritation. 可能引起呼吸道刺激

Symbol标志



GHS08



GHS05



GHS07

This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. Intended use of the product should not result in exposure to the chemical substance, This is a battery. In case of rupture: the above hazards exist.

这个产品是一种含有化学物质的物品。安全信息是为了固体物质的暴露而提供。这是一个电池，本产品的预期用途不应导致化学物质暴露。万一破裂，上述危害存在。

Precautionary Statements – Prevention

预防说明—预防

P201	Obtain special instructions before use. 在使用前获得特殊说明
P202	Do not handle until all safety precautions have been read and understood. 阅读和理解安全注意事项后再操作
P281	Use personal protective equipment as required. 按要求使用个人防护装备
P264	Wash face, hands and any exposed skin thoroughly after handling. 处理后彻底清洗脸、手和任何暴露的皮肤
P272	Contaminated work clothing should not be allowed out of the workplace. 不应让受污染的工作服离开工作场
P210	Keep away from heat/sparks/open flames/hot surfaces –no smoking. 远离热源/火花/明火/热表面——禁止吸烟
P270	Do not eat, drink or smoke when using this product. 使用本品时请勿吃、喝、吸烟

Precautionary Statements – Response

预防声明—响应

P301+ P330+ P308

If exposed or connected: Get medical advice/attention. Specific treatment(see supplemental first aid/instruction on this label).

如果暴露或接触： 求医/就医。特殊治疗（见标签上的补充急救/说明）

Skin: If on skin: wash with plenty of soap and water. Take off contaminated clothing and water before reuse, if skin irritation or rash occurs: get medical advice/attention if feel unwell.

皮肤： 如果皮肤:用大量的肥皂和水清洗。如果出现皮肤刺激或皮疹，在重复使用前脱下受污染的衣服和水:如果感觉不适，请就医/就诊。

Eye: If in eyes: Rinse cautiously with water for several minutes, remove contact lenses, if present and easy to do, Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell.

眼睛： 如果进入眼睛： 小心用水冲洗几分钟，取下隐形眼镜，如果存在且容易做到，继续冲洗；如果你感觉不舒服，打电话给中毒中心或医生/医生

Inhalation: If inhalation: if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician if you feel unwell.

吸入： 如果吸入，如果呼吸困难，将患者转移到空气新鲜的地方，保持一个适合呼吸的姿势休息；如果出现呼吸道症状，如果感觉不适，呼叫解毒中心或医生/内科医生。

Ingestion: If swallowed: rinse mouth, do not induce vomiting, Call a POISON CENTER or doctor/physician if you feel unwell.

食入： 如吞下： 漱口，不要催吐。如果感觉不适，呼叫解毒中心或医生/内科医生。

Precautionary Statements – Storage

预防声明—存储

P405	Store locked up 加锁存储
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Precautionary Statements – Disposal

预防声明—处置

P501	Dispose of contents/container to an approved waste disposal plant. 内容物/容器处理到经批准的废物处理工厂
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Hazards not otherwise classified (HNOC) 未分类的危险

Not applicable 不适用

Other information 其他信息

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
对水生生物有害，可能对水生环境造成长期不利影响。

Interactions with other chemicals 与其他化学物质的相互作用

Use of alcoholic beverages may enhance toxic effect.
使用酒精饮料可能会增强毒性作用

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT

第3节—成分信息

Chemical Name 化学成分	Concentration or . concentration ranges (%) 浓度或浓度范围 (%)	CAS Number CAS 号 (化学文摘索引登记号)
Phosphoric acid , iron (2+) lithium salt (1:1:1) 磷酸锂铁	17~35	15365-14-7
Graphite 石墨	5~18	7782-42-5
Aluminium 铝	2~6	7429-90-5
Copper 铜	4~8	7440-50-8
Polyvinyl chloride 聚氯乙烯	0~3	9002-86-2

SECTION 4 - FIRST AID MEASURES

第4节—急救措施

Eye Exposure 眼睛接触:

In case of contact with eyes, flush with copious of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

如果与眼睛接触，用大量的水冲洗至少15分钟。用手指分开眼睑，确保充分的冲洗。寻求医生。

Skin Exposure 皮肤接触:

If the internal battery materials of an opened battery cell come into contact with skin, immediately flush with plenty of water or soap.

如果打开的电池的內部電池材料接触到皮肤，立即用大量的水或肥皂冲洗。

Inhalation Exposure 吸入:

If inhaled the internals of battery vomiting. Seeking Immediate medical attention.

如果吸入電池內部嘔吐。立即就醫。

Ingestion Exposure 吞咽:

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

如果吞咽，請就醫。除非醫務人員指示，否則不要催吐。

SECTION 5 - FIRE FIGHTING MEASURES

第5节—消防措施

Danger characteristic 危险特性:

Exposure to excessive heat can cause venting of the liquid electrolyte.

暴露在过热的环境中会导致液体电解质的释放。

Battery may burst and release hazardous decomposition products when exposed to a fire situation.

当暴露在火灾环境中时，电池可能会爆裂并释放出危险的分解产物。

Hazardous combustion products 有害危险产物:

Corrosive and toxic gas may be emitted during fire.

着火期间可能会排放腐蚀性和有毒气体。

Fire-Fighting method 灭火措施:

The staff must equip with filtermask (full mask) or isolated breathing apparatus.

员工必须配备过滤器面罩或隔离式呼吸器。

The staff must wear the clothes which can defense the fire in the upwind direction.

工作人员必须穿能在逆风方向防火的衣服。

Remove the container to the open space as soon as possible.

尽快将容器移到空地上。

Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

把水喷在壁炉里的容器上，使其降温，直到熄灭。

Fire-Fighting media 灭火介质:

Plenty of water, dry chemical powder or carbon dioxide.

大量的水，干粉或二氧化碳。

SECTION 6 - ACCIDENTAL RELEASE MEASURES

第6节—意外泄漏措施

Emergency treatment 紧急处理:

If the battery material is released, remove personnel from area until the batteries cool down and fumes dissipate.

如果电池材料被释放，请将人员从该区域撤离，直到电池冷却和烟雾消散。

Provide maximum ventilation to clear out hazardous gases and avoid skin and eye contact or inhalation of vapors.

提供最大的通风以清除有害气体和避免皮肤和眼睛接触或吸入蒸汽。

Remove spilled liquid with absorbent and incinerate waste.

用吸收剂除去溢出的液体并焚烧废物。

SECTION 7 - HANDLING AND STORAGE

第7节—处理和储存

Handling 处理:

1. Do not allow battery terminals to contact each other, or contact with other metals.
不要让电池端子相互接触或与其他金属接触。
2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.
不要将电芯或电池放入火中或加热。不要直接焊接电池。不要将电芯或电池放在靠近火源或加热器等地方。
3. Do not expose the battery to excessive physical shock or vibration.
不要让电池受到过度的物理冲击或振动。
4. Do not immerse, throw, and wet a battery in water.
不要将电池浸入水中、投掷或弄湿。
5. Short-circuiting should be avoided. Short circuit will reduce the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short-circuited battery can cause skin burn.
应避免短路。短路会降低蓄电池的寿命，并可能导致周围材料着火。与短路电池的物理接触会导致皮肤灼伤。
6. The batteries 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.
不应打开、销毁或焚烧电池，因为电池可能泄漏或破裂，并将密封容器中的成分释放到环境中。
7. Place the cell beyond the child packing and container.
将电池放置在儿童触及不到的地方。
8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.

不要将电池直接连接到汽车的电源插座或香烟插座上。

9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.
请务必使用指定的蓄电池充电器，并正确遵循充电说明。
10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.
不要将新旧电池混合在一起使用，也不要与镍镉电池、干电池或其他制造商的电池或产品混合使用。

Storage 储存:

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.
电池应与其他材料分开，并存放在不燃、通风良好、有洒水装置保护的结构中，墙壁和电池堆之间应有足够的间隙。
2. Keep the sample in the cool, dry and well-ventilated place (temperature: -20~30 °C, humidity: 45~85%). Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid.
将样品置于阴凉、干燥、通风良好的地方（温度-20~30℃，湿度：45~85%）。不要长时间暴露在阳光直射下。远离火源和热源。不要用氧化剂和酸保存样品。
3. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.
配备相应种类和数量的灭火器材。储存场所应配备适当的掩蔽材料，以便进行泄漏处理。
4. For rechargeable battery, charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.
对于可充电电池，即使不使用电池，也应每6个月将电池充电至制造商规定的电量。

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

第8节—暴露控制与个人防护措施

Engineering Control 工程控制:

Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.
远离热源和明火。提供足够的局部排气。存放在阴凉干燥的地方。

Respiratory Protection 呼吸保护:

Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.
在正常使用条件下不需要。如果环境内气体密度超过空气中的密度，请佩戴自给式呼吸过滤器。在紧急救援或疏散的情况下，佩戴呼吸器。

Eyes Protection 眼睛保护:

Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.
在正常使用条件下不需要。如果处理泄漏或破裂的电池，请戴上防护眼镜。

Skin and Body Protection 皮肤和身体保护:

Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.
在正常使用条件下不需要。在处理泄漏或破裂的电池时，穿上防火防毒服。

Hands Protection 手部保护:

Not necessary under conditions of normal use. Wear chemical resistant rubber glove.
在正常使用条件下不需要。耐磨耐化学腐蚀橡胶手套。

Other Protections 其他保护:

No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.
工作场所禁止吸烟、就餐和饮水。保持良好的卫生习惯。

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES 第9节—理化性质	
Physical State 物理状态	Appearance : Prismatic 外形：棱柱形
	Color : Black + White 颜色：黑色+白色
	Odour : If leaking , smells of medical ether . 气味：泄漏时，医用乙醚的气味
Change in condition : 变化的条件：	
pH 酸碱度	Not applicable as supplied . 不适用。
Flash Point 闪点	Not applicable unless individual components exposed . 除非单个的组件暴露，否则不适用。
Flammability 易燃度	Not applicable unless individual components exposed . 除非单个的组件暴露，否则不适用。
Relative density : 相对密度	Not applicable unless individual components exposed . 除非单个的组件暴露，否则不适用。
Solubility (water) 溶解性（水溶性）	Not applicable unless individual components exposed . 除非单个的组件暴露，否则不适用。
Solubility (other) 溶解性（其他）	Not applicable unless individual components exposed . 除非单个的组件暴露，否则不适用。

SECTION 10 - STABILITY AND REACTIVITY 第10节—稳定性与反应性
Stability 稳定性: Stable under normal temperature and pressure. 常温常压下稳定。
Distribution of Ban 禁配物: Explosives, inflammables, strong oxidants and corrosives. 爆炸品、易燃物、强氧化剂和腐蚀剂。
Conditions to Avoid 应避免的条件: Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge. 火源、热源、拆卸、外部短路、压碎、变形、100°C 以上高温、阳光直射、高湿度、浸水或过充。
Hazardous Polymerization 危险聚合: Will not occur. 不会发生。
Hazardous Decomposition Products 有害分解产物: Metal oxides, carboxyl compound such as CO, CO ₂ , etc. 金属氧化物，碳化合物例如一氧化碳、二氧化碳，等等。

SECTION 11 - TOXICOLOGICAL INFORMATION 第11节—毒理学信息
Acute Toxicity 急性毒性: No information is available. 没有可用的信息。
Sub-acute and Chronic Toxicity 亚急性和慢性毒性:

No information is available.

没有可用的信息。

Irritation Data 刺激性数据:

The internal battery materials may cause irritation to eyes and skin.

电池内部材料可能会对眼睛和皮肤造成刺激。

Sensitization 致敏作用:

The liquid in the battery may cause sensitization to some person.

电池中的液体可能会对某些人造成敏化。

Mutagenicity 致突变性:

No information is available.

没有可用的信息。

Carcinogenicity 致癌性:

Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

钴及其钴的化合物有致癌的风险。

Others 其他:

Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.

由于该电池中的材料密封在罐体中，当按照指示使用电池时，接触电池组件的可能性可以忽略不计。但是，电池的技术或电气滥用可能会导致蓄电池内容物的释放。

SECTION 12 - ECOLOGICAL INFORMATION

第12节—生态信息

Eco-toxicity 生态毒性:

No information is available.

没有可用的信息。

Biodegradable 生物降解性:

No information is available.

没有可用的信息。

Mobility in soil 土壤流动性:

No information is available.

没有可用的信息。

Bioconcentration or biological accumulation 生物浓缩或生物积累:

No information is available.

没有可用的信息。

Other harmful effects 其他有害影响:

Don't abandon the battery into environment, may cause water or soil pollution.

不要将电池扔进环境中，可能造成水或土壤污染。

SECTION 13 - DISPOSAL CONSIDERATIONS

第13节—处置注意事项

Appropriate Method of Substance 物质处理方法:

The battery should be completely discharged prior to disposal in order to prevent short circuit.

为了防止短路，在处理前应将蓄电池完全放电。

The battery contains recyclable materials, and it is suggested recycle.

电池含有可回收材料，建议回收利用。

Refer to National or Local regulations before handling.

操作前请参阅国家或地方法规。

Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.
 电池的处理应由获得国家或地方法规的许可的具有危险废物处理和危险废物运输的专业处理公司进行。

SECTION 14 - TRANSPORT INFORMATION
第14节—运输信息

UN number 联合国货物编号 (UN编号)	3480
Proper shipping name 运输专用名称	Lithium ion batteries (including lithium ion polymer batteries) 锂离子电池 (包括锂离子聚合物电池)
UN Classification (Transport hazard class): UN分类 (运输危险类别):	Class 9 9类
PG Packing Group: PG包装等级:	II II
Marine pollutant(Y/N): 海洋污染物 (Y/N):	N
IMDG EmS No.: IMDG EmS 编号:	F-A,S-I

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
 无论是对内还是对外的运输或运输方式, 用户都需要注意或遵守的特殊预防措施。

ICAO/IATA: 国际民间航空组织 / 国际航空运输协会	Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instruction 965 Section IA, appropriate of IATA DGR 65th (2024 Edition) for transportation. 货物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 965 Section IA, 相关规定进行空运。
IMDG CODE: 国际海运危险货物规则:	Shipping may be done in accordance with the IMDG Code 2022 Edition (Amdt 41-22). 可根据 IMDG Code 2022 版 (Amdt 41-22) 相关规定进行海运。
DOT: 美国运输部:	Other requirements for the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185. 美国运输部 (DOT) 有害物质规则 c 分章中的其他规定, 运输符合要求 49 CFR 173.185.
ADR/ ADN: 欧洲国际陆运危险货物协定 / 关于内陆水道国际运输危险货物的欧洲协定	Transport Requirements for United Nations Economic Commission for Europe (UNECE) ADR/ADN, Applicable as from 1 January 2023. 自 2023 年 1 月 1 日起需符合联合国欧洲经济委员会 (UNECE) ADR/ADN 的运输要求。

In addition, to be permitted in transport each lithium cell and battery types must have passed the applicable tests set out in Subsection 38.3 of the UN Manual of Tests and Criteria.
 此外, 每个锂电芯和电池类型都必须通过联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 节规定的适用测试。

SECTION 15 - REGULATORY INFORMATION
第15节—监管信息

Dangerous Goods Regulation (DGR)
Recommendations on the Transport of Dangerous Goods Model Regulations
International Maritime Dangerous Goods (IMDG)

Occupational Safety and Health Act (OSHA)
Toxic Substances Control Act (TSCA)
Code of Federal Regulations (CFR)
Technical Instructions for the Safe Transport of Dangerous Goods
California Proposition 65
Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA)
Globally Harmonized System of Classification and Labeling of Chemicals(GHS)
In accordance with all Federal, State and local laws. 符合所有联邦、州和地方法律。

SECTION 16 - ADDITIONAL INFORMATION

第16节—附加信息

Accordinging standard 标准依据:

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections
ISO 11014:2009(E) Safety data sheet for chemical products – Content and order of sections

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Other Information 其他信息:

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--End of the report--