



# UN38.3 试验概要

## UN38.3 Test Summary

单位信息 company information			
委托单位 Applicant	山东海帝新能源科技有限公司/Haidi Energy Technology Co., Ltd. 山东省枣庄市薛城区永福南路 6 号/No. 6, Yongfu Road, Xuecheng District, Zaozhuang, Shandong, China		
	电话/Tel: 0632-4423888	邮箱/E-Mail: tech01@haidienergy.com	
	网址/Web:--		
制造商 Manufacturer	山东海帝新能源科技有限公司/Haidi Energy Technology Co., Ltd. 山东省枣庄市薛城区永福南路 6 号/No.6,Yongfu Road, Xuecheng District, Zaozhuang, Shandong, China		
	电话/Tel: 0632-4423888	邮箱/E-Mail: tech01@haidienergy.com	
	网址/Web:--		
测试单位 Test lab	深圳市德普华电子测试技术有限公司 ShenZhen STS Test Services Co., Ltd. 深圳市宝安区福永街道和平社区重庆路 190 号卓科科技园 B 栋第一层 A A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China		
	电话/Tel: +86-755 3688 6288	邮箱/E-Mail: sts@stsapp.com	
	网址/Web: <a href="http://www.stsapp.com/">http://www.stsapp.com/</a>		
电池信息 Battery information			
名称 Name	磷酸铁锂电池组 LiFePO4 Battery Pack	商标 Trade Mark	N/A
型号 Model	25.6V 18Ah	容量 Capacity	18Ah
标称电压 (V) Nominal Voltage	25.6V	额定瓦时 Rated Watt-hour	460.8Wh
重量 weight	4.2kg	产品描述 Product description	蓝色近长方体电池 Blue cuboid battery
测试信息 test information			
报告编号 Test report no.	STS2004078B01	测试报告日期 Date of test report	2020-5-13
测试标准 Test standard	关于危险货物运输的建议书试验和标准手册第六修订版修正 1 ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3		
T.1 高度模拟	合格 Pass	T.5 外部短路	合格 Pass
T.2 温度测试	合格 Pass	T.6 挤压/撞击	合格 Pass
T.3 振动测试	合格 Pass	T.7 过充电	合格 Pass
T.4 冲击测试	合格 Pass	T.8 强制放电	合格 Pass
38.3.3 (f)	/	38.3.3 (g)	/

样品图片 sample picture



<p>结论 Conclusion</p>	<p>测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of tests and Criteria ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3</p>		
<p>备注 Remark</p>	<p>无</p>		
<p>签名 signature 职务 title</p>	<p><i>杨超</i> <i>Boony Yoney</i> 技术总监 technical director</p>	<p>签发日期 Issued date</p>	<p>2020-5-21</p>



--- 结束 ---



中国认可  
检验  
INSPECTION  
CNAS IB0078

危险物品  
DANGEROUS GOODS

仅限货机运输

## 航空运输危险性鉴别报告

### Identification and Classification Report for Air Transport of Goods

报告编号: PEKSZ202502244997YQQ840001  
Issued No.:  
生效日期: 2025. 02. 25  
Effective Date:

此报告本年度有效  
有效期至2025年12月31日

委托单位: 山东海帝新能源科技有限公司  
Applicant: Haidi Energy Technology Co., Ltd.

物品名称: 磷酸铁锂电池组 25.6V 18Ah 460.8Wh

Name of Goods: LiFeP04 Battery Pack 25.6V 18Ah 460.8Wh

北京迪捷姆空运技术开发有限公司

Beijing DGM Air Transport Technology Development Co.,Ltd.



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项目编号 Item No.		PEKSZ202502244997		
物品名称 Name of Goods	中文 Chinese	磷酸铁锂电池组 25.6V 18Ah 460.8Wh		
	英文 English	LiFePO4 Battery Pack 25.6V 18Ah 460.8Wh		
鉴别结论 Conclusions		<p>该物品为锂离子/聚合物电池，单独包装。额定瓦特小时为460.8Wh。已通过 UN38.3 测试。</p> <p>参考有关资料，根据DGR有关规定，该物质分类识别为第9类（或项）危险品，UN3480。 This goods is lithium ion/polymer battery, packed individually. Watt-hour rating is 460.8Wh. Each battery is of a type proved to meet the Requirements of each test in the UN MANUAL OF TESTS AND CRITERIA, Part III, sub-section 38.3.</p> <p>According to IATA DGR this substance is classified as dangerous goods Class (or division) 9, UN3480.</p>		
运输危险性 建议 Suggestion for Transport	UN/ID 编号 UN/ID No.	运输专用名称 Proper Shipping Name		类或项 Class or Div. (次要危险性) (Subsidiary Risk)
	UN3480	Lithium ion batteries		9
包装说明 Packing Inst.	客货机 Passenger and Cargo Aircraft		Forbidden	
	仅限货机 Cargo Aircraft only		965 IA	
注意事项 Remarks	包装必须达到II级包装的性能标准 Packagings must meet Packing Group II performance standards.			
主检员 Prepared by:	曾平平	审核人 Checked by:	邓磊	批准人 Approved by:
				报告单位（盖章） Stamp



制单： 叶青




# 磷酸铁锂电池组 25.6V 18Ah 460.8Wh

PEKSZ202502244997



**Battery Label----A**


Un Code:	UN3480
Battery Type:	Li-ion
Name:	B1FR19/66-12
Voltage&Capacity:	25.6V 18Ah 460.8Wh
Production Date:	16 - APR - 2020
Serial Number:	1891200012016005



1891200012016005

# 锂电池 UN38.3 试验概要 Lithium Battery Test Summary

项目编号: PEKSZ202502244997

单位信息 Company Information					
委托单位 Consignor	山东海帝新能源科技有限公司 山东省枣庄市薛城区永福南路 6 号 电话/Tel: 0632-4423888 邮箱/E-Mail: tech01@haidienergy.com				
生产单位 Manufacturer	山东海帝新能源科技有限公司 山东省枣庄市薛城区永福南路 6 号 电话/Tel: 0632-4423888 邮箱/E-Mail: tech01@haidienergy.com				
测试单位 Test Lab	深圳市德普华电子测试技术有限公司 深圳市宝安区福永街道和平社区重庆路 190 号卓科科技园 B 栋第一层 A 电话/Tel: +86-755 3688 6288 邮箱/Mail: sts@stsapp.com 网址/Website: http://www.stsapp.com/				
电池信息 Battery Information					
名称 Name	磷酸铁锂电池组 LiFePO4 Battery Pack	电池/电芯类别 Battery/Cell Classification		锂离子电池 Li-ion Battery	
型号 Type	25.6V 18Ah	商标 Trademark		/	
额定电压 Normal Voltage	25.6V	额定容量 Rated Capacity		18Ah	
额定能量 Watt-hour rating	460.8Wh	外观/Appearance		蓝色近长方体 Approximate Blue Cuboid	
质量/Mass	4.2kg	锂含量/Li Content		不适用 N/A	
测试信息 Test Information					
测试报告编号 Test Report Number	STS2004078B01	测试报告签发日期 Date of Test Report		2020-05-13	
测试标准 Edition of UN Manual of Tests and Criteria Used	联合国《关于危险货物运输的建议书-试验和标准手册》(第 6 版修订 1) 38.3 节 UN Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amend 1/Subsection 38.3				
T.1: 高度模拟 Altitude Simulation	通过 Pass	T.2: 温度试验 Thermal Test	通过 Pass	T.3: 振动 Vibration	通过 Pass
T.4: 冲击 Shock	通过 Pass	T.5: 外部短路 External Short Circuit	通过 Pass	T.6: 撞击/挤压 Impact/Crush	通过 Pass
T.7: 过度充电 Overcharge	通过 Pass	T.8: 强制放电 Forced Discharge	通过 Pass	/	
UN38.3.3(f)	不适用 N/A		UN38.3.3(g)		不适用 N/A
签名 Signatory 职务 Title	 检验员		签发日期 Issued Date	2025-02-24 	

识别分类专用章



# MATERIAL SAFETY DATA SHEET

Report No: STS2502042B01

Issued for

Haidi Energy Technology Co., Ltd.

No.6, Yongfu Road, Xuecheng District, Zaozhuang,  
Shandong, China

<b>Product Name:</b>	LiFePO4 Battery Pack
<b>Model Name:</b>	25.6V 18Ah
<b>Nominal Voltage:</b>	DC 25.6V
<b>Typical Capacity:</b>	18Ah
<b>Brand:</b>	/
<b>Version number:</b>	V1.0



**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	2025-02-25	STS2502042B01	ALL	Initial Issue



## Section 1- Chemical Product and Company Identification

Product Identification: LiFePO4 Battery Pack

Brand Name: N/A

Model Name: 25.6V 18Ah

Rated Capacity: 18Ah

Rated Power: 460.8Wh

Manufacture's/Supplier Name: Haidi Energy Technology Co., Ltd.

Address: No.6,Yongfu Road, Xuecheng District, Zaozhuang, Shandong, China

Connect Person: Zhaopengfei

Telephone: 0632-4423888

Email: tech01@haidienergy.com

Preparation Date: 2025-02-25

This MSDS was prepared by Shenzhen STS Test Services Co., Ltd.

Item Number: STS2502042B01

Referenced documents: ISO 11014:2009 Safety data sheet for chemical products

Compiled by

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(Jordan Yi)

Technical Manager

:

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(Tony Liu)

Authorized Signatory

:

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(Bovey Yang)





## Section 2 – Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred Polymer Lithium-ion Battery the ingredients contained within or their ingredients products could be harmful.
Appearance, Color, and Odor	Solid object with no odor, blue color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed stainless steel enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact
Potential Health Effects	<b>ACUTE (short term):</b> see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns. <b>Inhalation:</b> Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation. <b>Ingestion:</b> Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. <b>Skin:</b> Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin. <b>Eye:</b> Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye. <b>CHRONIC (long term):</b> see Section 11 for additional toxicological data
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

## Section 3 – Composition/Information on Ingredients

Hazardous Ingredients (Chemical Name)	Concentration / Concentration range	CAS Number
Hazardous Ingredients (Chemical Name)	Concentration / Concentration range	CAS Number
Lithium iron phosphate	22.4~24.8%	15365-14-7
Sodium carboxymethyl cellulose	0.2%	9000-11-7
Styrene butadiene rubber	0.3~0.4%	9003-55-8
Graphite	12~13.2%	1333-86-4
polypropylene	1.6~2.4%	9003-07-0



Lithium Hexafluorophosphate	1.2~1.4%	21324-40-3
Dimethyl Carbonated	2.4~2.9%	616-38-6
Methyl-Ethyl Carbonate	4.0~5.6%	623-53-0
Ethylene Carbonate	2.0~2.4%	96-46-1
Polyvinyl Chloride	2.0%	9002-86-2
Copper	7.2~8.0%	7440-50-8
Aluminum Foil	3.2~3.6%	7429-90-5
Iron	16~19.2%	7439-89-6
Nickel	0.9%	14332-32-2
Polybutadiene, low molecular (1,2-lpb)	1.6~4.7%	25038-44-2
Styrene-maleic anhydride copolymer	4.5~9.3%	9011-13-6
Ethylene-vinyl acetate copolymer	0.1%	--

LiFePO<sub>4</sub> Battery Pack is a mixture.

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number

N/A=Not apply.

## Section 4 – First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.



## Section 5 – Fire-fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	<b>Sensitivity to Mechanical Impact:</b> This may result in rupture in extreme cases <b>Sensitivity to Static Discharge:</b> Not Applicable
Specific Hazards arising from the chemical	Fires involving Polymer Lithium-ion Battery an be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire
Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
NFPA	Health: 0 Flammability: 0 Instability: 0

## Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.



## Section 7 – Handling and Storage

Handling	<p>Don't handling Polymer Lithium-ion Battery in metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.</p> <p>Prevent formation of dust.</p> <p>Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.</p>
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Storage	<p>If the Battery are subject to storage for such a long term as more than 3 months, it is recommended to recharge the Battery periodically.</p> <p>3 months: -10°C~+40°C, 45 to 85%RH And recommended at 0°C~+35°C for long period storage.</p> <p>The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.</p> <p>The voltage for a long time storage shall be 25.6V-29.2V range.</p> <p>Do not storage Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.</p> <p>Keep out of reach of children.</p> <p>Do not expose Battery to heat or fire. Avoid storage in direct sunlight.</p> <p>Do not store together with oxidizing and acidic materials.</p>
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## Section 8 – Exposure Controls and Personal Protection

Engineering Controls	<p>Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor.</p> <p>Keep away from heat and open flame. Store in a cool, dry place.</p>
Personal Protective Equipment	<p><b>Respiratory Protection:</b> Not necessary under normal conditions.</p> <p><b>Skin and body Protection:</b> Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.</p> <p><b>Hand protection:</b> Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p><b>Eye Protection:</b> Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.</p>
Other Protective Equipment	<p>Have a safety shower and eye wash fountain readily available in the immediate work area.</p>
Hygiene Measures	<p>Do not eat, drink, or smoke in work area. Maintain good housekeeping.</p>



## Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: blue
	Odour: Monotony
Change in condition:	Not applicable
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

## Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.



Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

## Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratoaenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

## Section 12 - Ecological Information

General note:	Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available





## Section 16 - Other Information

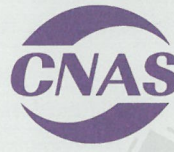
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The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*



海运  
By Sea



中国认可  
检验  
INSPECTION  
CNAS IB0078

# 运输危险性鉴别报告书

Identification and Classification Report for Transport of Goods

危险物品  
(Dangerous Goods)

此报告本年度有效  
有效期至2025年12月31日

报告编号:

SEKSZ202502245918YQQ080001

Issued No:

生效日期:

2025.02.25

Effective Date:

委托单位:

山东海帝新能源科技有限公司

Applicant:

Haidi Energy Technology Co., Ltd.

物品名称:

磷酸铁锂电池组 25.6V 18Ah 460.8Wh

Name of Goods:

LiFeP04 Battery Pack 25.6V 18Ah 460.8Wh

北京迪捷姆空运技术开发有限公司

Beijing DGM Air Transport Technology Development Co.,Ltd.



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According to the demand of identification and classification, DGM China requires the applicant to provide true and exact sample and data of the goods.
3. 委托人保证申报的物品和/或提供的样品与交运的货物是同一种物质。  
The applicant guarantees that the declared goods and/or the sample who provides should be identical with the contents of cargo that is to be transported.
4. 本公司仅对委托方所提供样品的鉴别结果负责。  
DGM China is only responsible for the identification and classification of the sample provided by the applicant.
5. 本报告书经主检员、审核人和批准人签字并加盖本公司印章后生效。  
This report will be effective only after it is signed by the inspector, checker and approver, and stamped by DGM China.
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This report is only valid within the year.

地址：北京首都机场货运北路天竺综合保税区 BGS 货运楼 249 室 邮编：101300

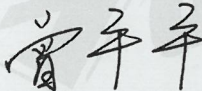

电话：010-69479673

传真：010-69479621

网址：[www.dgmchina.com.cn](http://www.dgmchina.com.cn)

E-mail: [test@dgmchina.com.cn](mailto:test@dgmchina.com.cn)



项目编号 Item No.	SEKSZ202502245918	签发日期 Issued Date	2025.02.25
鉴别目的 Identification Purpose	是否属于运输危险物品 Dangerous Goods or not restricted	鉴别日期 Identification Date	2025.02.24-2025.02.25
鉴别依据 Identification Criteria	IMDG CODE (Amdt 42-24)		
物品名称 Name of Goods	中文名称 Name of Chinese	磷酸铁锂电池组 25.6V 18Ah 460.8Wh	
	英文名称 Name of English	LiFePO4 Battery Pack 25.6V 18Ah 460.8Wh	
生产厂家 Manufacturer	山东海帝新能源科技有限公司 Haidi Energy Technology Co., Ltd.		
物品信息 Nature of Goods	<p>该物品为锂离子电池，蓝色，近长方体，尺寸：182×86×186mm。 型号/族号：25.6V 18Ah 每包装件中电池或电芯数量：2块 单独包装</p> <p>(注：单块电池的重量约为4.2kg。该电池由塑料袋单独包装，以防止短路。) The goods are lithium ion batteries, blue, almost cuboid, Size:182×86×186mm. Model/Group:25.6V 18Ah Number of batteries or cells per package:2 pieces Cells or batteries only</p>		
鉴别结论 Conclusions	危险物品 (Dangerous Goods)		
	UN 编号(UN No.):	UN3480	
	运输专用名称(PSN)	Lithium ion batteries	
	危险性类别(Class or Div.)	9	
	包装等级(PG)		
备注 Comment	包装必须达到 II 级包装的性能标准。 Packagings must meet Packing Group II performance standard.		
主检员 Appraiser	审核人 Checker	批准人 Approver	报告单位 (盖章) Stamp
			
			



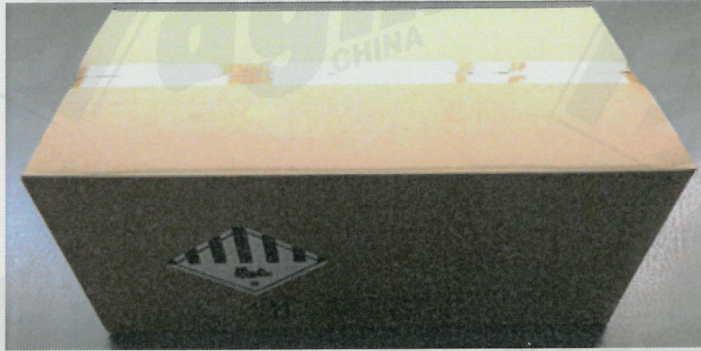
项目编号 Item No.		SEKSZ202502245918
物品名称 Name of Goods	中文名称 Name of Chinese	磷酸铁锂电池组 25.6V 18Ah 460.8Wh
	英文名称 Name of English	LiFePO4 Battery Pack 25.6V 18Ah 460.8Wh
鉴别项目名称 Item		检验结果 Inspection Result
该电池额定瓦特小时数为 460.8 Wh。 Watt-hour rating of the battery is 460.8 Wh.		>100Wh
锂电池已通过 UN38.3 测试。 Each battery is of a type proved to meet the Requirements of each test in the UN MANUAL OF TESTS AND CRITERIA, Part III, sub-section 38.3.		符合 Conform
电池按照规定的质量管理体系进行制造。 Batteries be manufactured under a quality management programme.		符合 Conform
该锂电池不属于召回电池，不属于废弃和回收电池。 The lithium batteries don't belong to batteries returned to the manufacturer for safety reasons, are not waste lithium batteries and not lithium batteries being shipped for recycling or disposal.		符合 Conform
通过包装件 1.2 米跌落试验。 Each package is capable of withstanding a 1.2m drop test in any orientation.		不适用 Not applicable
包装件需要按照特殊规定188的要求进行适当标记。 The package must be appropriately marked according to special provision 188.		不适用 Not applicable
每票托运物品均有随附文件说明： 包装件内装锂离子电池或电芯； 必须小心操作。如包装件破损，有易燃危险性； 包装件破损时应采取的特殊措施，包括检查和必要时的重新包装； 应急电话号码。 Each consignment is accompanied with a document with an indication that: the package contains lithium ion cells or batteries; the package must be handled with care, and that a flammability hazard exists if the package is damaged; special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and a telephone number for additional information.		不适用 Not applicable
/		/
/		/
注意事项 Remarks	每一单电池必须做好防短路措施，并装入坚固外包装内。 Each single battery must be packed in such a way as to prevent short circuits under the normal conditions and packed in strong outer packagings.	

出单：叶青



# 磷酸铁锂电池组 25.6V 18Ah 460.8Wh

SEKSZ202502245918



## Battery Label----A

Un Code:	UN3480
Battery Type:	Li-ion
Name:	8IFR19/66-12
Voltage&Capacity:	25.6V 18Ah 460.8Wh
Production Date:	16 - APR - 2020
Serial Number:	1891200012016005



1891200012016005

# 锂电池 UN38.3 试验概要 Lithium Battery Test Summary

项目编号: SEKSZ202502245918

单位信息 Company Information					
委托单位 Consignor	山东海帝新能源科技有限公司 山东省枣庄市薛城区永福南路 6 号 电话/Tel: 0632-4423888 邮箱/E-Mail: tech01@haidienergy.com				
生产单位 Manufacturer	山东海帝新能源科技有限公司 山东省枣庄市薛城区永福南路 6 号 电话/Tel: 0632-4423888 邮箱/E-Mail: tech01@haidienergy.com				
测试单位 Test Lab	深圳市德普华电子测试技术有限公司 深圳市宝安区福永街道和平社区重庆路 190 号卓科科技园 B 栋第一层 A 电话/Tel: +86-755 3688 6288 邮箱/Mail: sts@stsapp.com 网址/Website: http://www.stsapp.com/				
电池信息 Battery Information					
名称 Name	磷酸铁锂电池组 LiFePO4 Battery Pack	电池/电芯类别 Battery/Cell Classification		锂离子电池 Li-ion Battery	
型号 Type	25.6V 18Ah	商标 Trademark		/	
额定电压 Normal Voltage	25.6V	额定容量 Rated Capacity		18Ah	
额定能量 Watt-hour rating	460.8Wh	外观/Appearance		蓝色近长方体 Approximate Blue Cuboid	
质量/Mass	4.2kg	锂含量/Li Content		不适用 N/A	
测试信息 Test Information					
测试报告编号 Test Report Number	STS2004078B01	测试报告签发日期 Date of Test Report	2020-05-13		
测试标准 Edition of UN Manual of Tests and Criteria Used	联合国《关于危险货物运输的建议书-试验和标准手册》(第 6 版修订 1) 38.3 节 UN Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amend 1/Subsection 38.3				
T.1: 高度模拟 Altitude Simulation	通过 Pass	T.2: 温度试验 Thermal Test	通过 Pass	T.3: 振动 Vibration	通过 Pass
T.4: 冲击 Shock	通过 Pass	T.5: 外部短路 External Short Circuit	通过 Pass	T.6: 撞击/挤压 Impact/Crush	通过 Pass
T.7: 过度充电 Overcharge	通过 Pass	T.8: 强制放电 Forced Discharge	通过 Pass	/	
UN38.3.3(f)	不适用 N/A		UN38.3.3(g)	不适用 N/A	
签名 Signatory 职务 Title	曾平平 检验员		签发日期 Issued Date	2025-02-24	

识别码  
专用章



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中国认可  
国际互认  
检测  
TESTING  
CNAS L7649



## UN38.3 检测报告

### UN38.3 Test Report

申请商名称: 山东海帝新能源科技有限公司

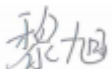
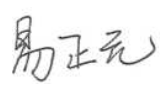
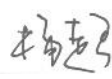
Applicant's name: Haidi Energy Technology Co., Ltd.

产品名称 Product Name:	磷酸铁锂电池组 LiFePO4 Battery Pack
商标名称 Brand Name:	N/A
型号 Model Name:	25.6V18Ah-189120001
报告编号 Report No:	STS2004078B01
测试标准 Test Standard:	ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3



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<b>TEST REPORT</b> <b>UN38.3, Sixth Edition Amend.1</b> <b>Recommendations on transport of dangerous goods, manual of test and criteria,</b> <b>Section 38.3 – Lithium metal and lithium ion batteries</b>	
<b>Report Number</b> .....	STS2004078B01
<b>Tested by (+ signature)</b> .....	黎旭 
<b>Reviewed by (+ signature)</b> .....	易正元 
<b>Approved by (+ signature)</b> .....	杨超 
<b>Date of issue</b> .....	2020-5-13
<b>Total number of pages</b> .....	16 Pages
<b>Testing laboratory</b> .....	Shenzhen STS Test Services Co.,Ltd.
<b>Address</b> .....	A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
<b>Applicant's name</b> .....	Haidi Energy Technology Co., Ltd.
<b>Address</b> .....	No.6,Yongfu Road, Xuecheng District, Zaozhuang, Shandong, China
<b>Test specification:</b>	
<b>Standard</b> .....	ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3
<b>Test procedure</b> .....	Test report
<b>Non-standard test method</b> .....	N/A
<b>Test item description</b> .....	
<b>Trade Mark</b> .....	N/A
<b>Manufacturer</b> .....	Haidi Energy Technology Co., Ltd.
<b>Address</b> .....	No.6,Yongfu Road, Xuecheng District, Zaozhuang, Shandong, China
<b>Model/Type reference</b> .....	25.6V18Ah-189120001
<b>Ratings</b> .....	25.6V 18Ah 460.8Wh



**Summary of testing:****Tests performed (name of test and test clause):**

Test items	Sample Number
T.1: Altitude simulation / 高度模拟	B1# - B8 #
T.2: Thermal test / 温度测试	
T.3: Vibration / 振动	
T.4 Shock / 冲击	
T.5 External short circuit / 外接短路	
T.6 Crush / 挤压 or Impact/撞击	C9# - C18#
T.7 Overcharge / 过充电	B19# - B26#
T.8 Forced discharge / 强制放电	C27# - C46#

The sample's status is good.  
样品状况良好。

The conditions of the batteries of samples No. B1# to B4# are at first cycle, in fully charged states.  
样品编号B1# - B4#为第一次循环充放电周期完全充电状态的电池。

The conditions of the batteries of samples No. B5# to B8# are after twenty five cycles, in fully charged states.  
样品编号B5# - B8#为第二十五次循环充放电周期完全充电状态的电池。

The conditions of the cells of samples No. C9# to C13# are at first cycle at 50% of the design rated capacity.  
样品编号C9# - C13#为第一次循环充放电周期充电至标称容量的50%状态的电芯。

The conditions of the cells of samples No. C14# to C18# are after twenty five cycles at 50% of the design rated capacity.  
样品编号C14# - C18#为第二十五次循环充放电周期充电至标称容量的50%状态的电芯。

The conditions of the batteries of samples No. B19# - B22# are at first cycle, in fully charged states.  
样品编号B19# - B22#为第一次循环充放电周期后完全充电状态的电池。

The conditions of the batteries of samples No. B23# - B26# are after twenty five cycles ending in fully charged states.  
样品编号B23# - B26#为第二十五次循环充放电周期后完全充电状态的电池。

The conditions of the cells of samples No. C27# to C36# are at first cycle, in fully discharged states.  
样品编号C27# - C36#为第一次循环充放电周期完全放电状态的电芯。

The conditions of the cells of samples No. C37# to C46# are after twenty five cycles ending in fully discharged states.  
样品编号 C37# to C46#为第二十五次循环充放电周期后完全放电状态的电芯。

**Test Procedure:**

1. Each battery type is subjected to tests T.1 to T.8. Tests T.1 to T.5 are conducted in sequence on the same battery. Tests 6 and 8 are conducted using not otherwise tested batteries. Test T.7 may be conducted using undamaged batteries previously used in Tests T.1 to T.5 for purposes of testing on cycled batteries.

每一种类型的电池均应进行 T.1 至 T.8 项试验。电池必须按顺序在相同的一组电池上进行试验 T.1 至 T.5。试验 T.6 和 T.8 应使用未另外试验过的电池。试验 T.7 可以使用先前在试验 T.1 至 T.5 中使用过的未损坏电池进行，以便测试进行在循环过的电池上。

2. In order to quantify the mass loss, the following procedure is provided:

$$\text{Mass loss (\%)} = (M1 - M2) / M1 \times 100$$

为了量化质量损失，可用以下公式计算：质量损失(%)=(M1-M2)/M1×100

Where M1 is the mass before the test and M2 is the mass after the test. When mass loss does not exceed the values in Table below, it is considered as "no mass loss".

式中：M1 是试验前的质量，M2 是试验后的质量。如果质量损失不超过下表所列的数值，应视为“无质量损失”。

Mass M of cell or battery 电芯或电池的质量	Mass loss limit 质量损失限值
M < 1g	0.5%
1g ≤ M ≤ 75g	0.2%
M > 75g	0.1%

3. In test T.1 to T.4, batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test battery after testing is not less than 90% of its voltage immediately prior to this procedure.

在测试 T.1 至 T.4 中，电池须满足无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电池在试验后的开路电压不小于其在进行这一试验前电压的 90%。

**Comment:**

This report also includes:

- Photo documentation: 2 pages

**Possible test case verdicts:**

- test case does not apply to the test object ..... N (not applicable)

判定不适用于测试对象:

- test object does meet the requirement ..... P (Pass)

测试符合规定:

-test object does not meet the requirement ..... : F (Fail)

测试不符合规定:

**Testing** .....

Date of receipt of test item ..... 2020-04-29

Date(s) of performance of tests ..... 2020-04-29 to 2020-05-13

**General remarks:**

The test results presented in this report relate only to the object tested.

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"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

**General product information:**

The LiFePO<sub>4</sub> Battery Pack is constructed with 96 Lithium-ion Rechargeable Cells (8S12P).

The main features of the battery pack and the cell are shown as below:

Product name/产品名称	Lithium-ion Rechargeable Cell	LiFePO <sub>4</sub> Battery Pack
Battery/cell type 电池/电芯类型	Lithium-ion cell	Multi-cell lithium ion battery
Type/model/型号	FRA EP H1	25.6V18Ah-189120001
Nominal voltage/标称电压	3.2V	25.6V
Rated capacity/额定容量	1500mAh	18Ah
Li Content /锂含量	/	/
Recommended charging Voltage/推荐充电电压	3.65V	29.2V
Maximum charging Current/最大充电电流	1500mA	18A
Maximum discharging Current/最大放电电流	7500mA	20A
Discharge cut-off voltage/ 放电截止电压	2.0V	20V
Dimensions/尺寸	Max: (φ):18.4mm+ (H) :65.4mm	TxWxL: MAX182mm x86mmx186mm
Weight/重量	Approx. 42g	Approx. 4.222Kg

**The final evaluation of the battery must be conducted in the end product for which the battery will be used.**



Clause	Requirement + Test	Result - Remark	Verdict
<b>38.3.4.1</b>	<b>Test T.1: Altitude simulation/高度模拟</b>		P
	Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature(20±5°C) 电池和电芯在温度为 20±5°C、大气压力不大于 11.6 kPa 的环境中贮存不少于 6 个小时。		
	Cells and batteries meet this requirement if there is no mass loss, no leakage, no venting no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure .the requirement relating to voltage is not applicable to test cells and batteries at fully discharged states./电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象：电芯或电池测试后的开路电压不低于测试前开路电压的 90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池	No leakage, no venting, no disassembly, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。  The data see table 1./测试数据见表 1。	P
<b>38.3.4.2</b>	<b>Test .2: thermal test/温度测试</b>		P
	Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72±2°C, followed by storage for at least six hours at a test temperature equal to -40±2°C. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambient temperature(20±5°C). /首先将样品放在 72 ±2°C 的环境中放置至少 6 个小时，然后放在-40±2°C 的环境中放置至少 6 个小时，温度暂缓的最大间隔时间为 30 分钟。如此循环 10 次，最后将样品放在 20±5°C 的环境中静置 24 小时。		P
	For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours./对于大电芯，在高温和低温中放置的时间最少为 12 小时。		N
	Cells and batteries meet this requirement if there is no mass loss no leakage, no venting, disassembly, no repture and no fire and if the open circuit voltage of each cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. /电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象：电芯和电池测试后的开路电压不低于测试前开路电压的 90%。	No leakage, no venting, no disassembly, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。  The data see table 1./测试数据见表 1。	P
<b>38.3.4.3</b>	<b>Test t.3: Vibration/振动</b>		P



Clause	Requirement + Test	Result - Remark	Verdict
	<p>Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face./样品必须牢固的安装 在振动台面上。振动以正弦波形式，以 7Hz 增加至 200Hz，然后减少回到 7Hz 为一个循环，一个循环持续 15 分钟。对样品从三个互相垂直的方向上循环 12 次，共 3 个小时。其中一个振动方向必须是垂直样品的极性平面。</p>		P
	<p>The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 kg(cells and small batteries),and for batteries with a gross mass of more than 12 kg(large batteries)./对于质量不大于 12kg 的样品（电芯和电池）和质量超过 12kg 的电池（大电 池），对数扫频不同。</p>		P
	<p>For cells and small batteries: from 7 Hz a peak acceleration of 1 g<sub>n</sub> is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 8 g<sub>n</sub> occurs (approximately 50 Hz). A peak acceleration of 8 g<sub>n</sub> is then maintained until the frequency is increased to 200 Hz. /对于电芯和小电池，对数扫频为：从 7Hz开始保持1g<sub>n</sub>的最大加速度直到频率为18Hz，然后将振幅保持在0.8mm（总偏移1.6mm）并增加频率直到最大加速度达到8g<sub>n</sub>（频率约为50Hz），将最大加速度保持在8g<sub>n</sub>直到频率增加到200Hz。</p>		P
	<p>For large batteries: from 7 Hz a peak acceleration of 1 g<sub>n</sub> is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g<sub>n</sub> occurs (approximately 25 Hz). A peak acceleration of 2 g<sub>n</sub> is then maintained until the frequency is increased to 200 Hz. /对于大 电池，对数扫频为：从 7Hz 开始保持 1g<sub>n</sub>的最大加 速度直到频率为 18Hz，然后将振幅保持在 0.8mm（总偏移 1.6mm）并增加频率直到最大加速度达到 2g<sub>n</sub>（频率约为 25Hz），将最大加速度保持在 2g<sub>n</sub>直 到频率增加到 200Hz。</p>		N



Clause	Requirement + Test	Result - Remark	Verdict
	<p>Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire during the test and after the test and if the open circuit voltage of each test cell or battery directly after testing in its third perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states./电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象；电芯或电池测试后的开路电压不低于测试前开路电压的90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池。</p>	<p>No leakage, no venting, no disassembly, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。</p> <p>The data see table 1./测试数据见表 1</p>	P
38.3.4.4	<b>Test T.4: Shock/冲击</b>		P
	<p>Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each cell or battery shall be subjected to a half-sine shock of peak acceleration of 150 g<sub>n</sub> and pulse duration of 6 milliseconds. Each cell or battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks. /以稳固的托架固定住每个样品。对每个样品以峰值为 150g<sub>n</sub> 的半正弦的加速度撞击，脉冲持续 6ms。每个样品必须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。</p>		P
	<p>However, large cells and large batteries shall be subjected to a half-sine shock of peak acceleration of 50g<sub>n</sub> and pulse duration of 11 milliseconds. Each cell or battery is subjected to three shocks in the positive direction followed by three shocks in the negative direction of each of three mutually perpendicular mounting positions of the cell for a total of 18 shocks. /大电芯和大电池须经受最大加速度50g<sub>n</sub>和脉冲持续时间11ms的半正弦波冲击。每个样品必须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受18次冲击。</p>		N



Clause	Requirement + Test	Result - Remark	Verdict
	<p>Cells and batteries meet this requirement if there is no mass loss, no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.</p> <p>/ 电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象；电芯或电池测试后的开路电压不低于测试前开路电压的 90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池。</p>	<p>No leakage, no venting, no disassembly, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。</p> <p>The data see table 1./测试数据见表 1</p>	P
38.3.4.5	<b>Test T.5: External short circuit/外部短路</b>		P
	<p>The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4°C and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57±4°C. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4°C. /保持测试环境温度稳定在 57±4°C，以便样品外表温度达到 57±4°C，然后将样品正负极用小于 0.1 欧姆的总电阻回路进行短路，样品的外表温度恢复到 57±4°C 之后保持短路状态 1 小时以上。</p>		P
	<p>Cells and batteries meet this requirement if their external temperature does not exceed 170 °C and there is no disassembly, no rupture and no fire during the test and within six hours after the test./电芯和电池符合要求：在测试过程中以及之后 6 个小时内，外表温度不超过 170°C，并且无分解、无破裂和无着火现象发生。</p>	<p>No disassembly, no rupture and no fire during the test and within six hours after the test./在测试过程中以及之后6个小时内，外表温度不超过 170°C，并且无分解、无破裂和无着火现象发生。</p> <p>The data see table 1.</p> <p>/ 测试数据见表 1。</p>	P
38.3.4.6	<b>Test T.6: Impact / Crush/撞击/挤压</b>		P
	<p>Test procedure – Impact (applicable to cylindrical cells greater than or equal to 18 mm in diameter) / 撞击(适合于直径大于或等于18mm的圆柱形电芯)</p>		N



Clause	Requirement + Test	Result - Remark	Verdict
	The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm±0.1mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the center of the sample. A 9.1 kg±0.1 kg mass is to be dropped from a height of 61±2.5 cm at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface. /将样品放在一个平坦的光滑平面上。将一直径为15.8 mm± 0.1mm, 长度不小于6cm的316不锈钢棒横过样品中部放置后, 将一质量为9.1 kg±0.1kg的重物从61±2.5 cm的高度落向样品		N
	The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm±0.1mm diameter curved surface lying across the center of the test sample. Each sample is to be subjected to only a single impact. /接受撞击的样品, 纵轴应与平坦的表面平行并与横放在样品中心的直径15.8 mm±0.1mm弯曲表面的纵轴垂直。每一个样品只接受一次撞击。		N
	Test Procedure – Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not more than 18 mm in diameter). /挤压 (适用于棱柱形、袋状、硬币/纽扣电芯和直径不超过18mm的圆柱形电芯)		P
	A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. /将样品放在两个平面之间挤压, 挤压力度逐渐加大, 在第一个接触点上的速度大约为1.5cm/s。挤压持续进行, 直到出现以下三种情况之一		P
	(a) The applied force reaches 13 kN±0.78 kN; /施加力达到 13 kN±0.78 kN		P
	(b) The voltage of the cell drops by at least 100 mV; /样品的电压下降至少100mV		N
	(c) The cell is deformed by 50% or more of its original thickness. /电池变形达原始厚度的50%以上。		N



Clause	Requirement + Test	Result - Remark	Verdict
	A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. /棱柱形或袋状电芯应从最宽的一面施压。纽扣/硬币形电芯应从其平坦表面施压。圆柱形应从与纵轴垂直的方向施压。		P
	Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6 h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests./每个样品都是全新样品，并且只经受一次施压。施压结束后样品应静置观察6小时。		P
	Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassembly and no fire during the test and within six hours after this test. /电芯满足要求：在测试过程中以及之后6个小时内，外表温度不超过 170°C，并且无分解和无着火现象发生。	No disassembly and no fire. /无分解，无着火现象发生。 The data see table 2. /测试数据见表 2。	P
<b>38.3.4.7</b>	<b>Test T.7: Overcharge/过充电</b>		P
	The charge current shall be twice the manufacturer's recommended maximum continuous charge current. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The minimum voltage of the test shall be as follows: /在室温下，以2倍的制造商宣称的最大持续充电电流对样品充电，测试时间为24小时。测试的最小电压如下：		P
	(a) When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. /如果制造商宣称的充电电压不超过18V，本测试的最小充电电压应是制造商宣称的最大充电电压的两倍或者是22V之中的较小者。		P
	(b) When the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. /如果制造商宣称的充电电压超过18V，本测试的最小充电电压应该是制造商宣称的最大充电电压的1.2倍。	The voltage of the test is 35.04V, and the current is 36.0A. /测试电压为 35.04V, 电流为 36.0A.	N
	There is no disassembly and no fire during the test and within seven days after the test. /在测试中和测试完成后 7 天内，样品无分解和无着火现象。	No disassembly and no fire. /无分解，无着火现象发生。 The data see table 3. /测试数据见表 3。	P
<b>38.3.4.8</b>	<b>Test T.8: Forced discharge/强制放电</b>		P



Clause	Requirement + Test	Result - Remark	Verdict
	<p>Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. /在室温下，将单个电芯连接在12V的直流电源上进行强制放电，此直流电源供给每个电芯初始电流为制造商宣称的最大放电电流。</p> <p>The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). /指定的放电电流通过串联在测试电芯上的合适大小和功率的负载来获得，每个电芯的强制放电时间(小时)为额定容量除以初始电流(安培)。</p>		P
	<p>There is no disassembly and no fire during the test and within seven days after the test. /在测试中和测试完成后 7 天内，样品无分解和无着火现象发生</p>	<p>No disassembly and no fire. /无分解和无着火现象发生。 The data see table 4. / 测试数据见表 4</p>	P



**Table 1: T.1~T.5 / 表 1. 测试 T.1~测试 T.5**

Sample No. 样品编号	Mass prior to Test (g)/试验前质量	OCV prior to test (V)/试验前电压	Test 1: Altitude Simulation/ 试验 1: 高度模拟		Test 2: Thermal test/ 试验 2: 温度试验		Test 3: Vibration/ 试验 3: 振动		Test 4 : Shock/ 试验 4: 冲击		Test 5 :External Short Circuit/ 试验5: 外部短路
			Mass loss(%) 质量损失 (%)	Change ratio 电压比(%)	Mass loss(%) 质量损失 (%)	Change ratio 电压比(%)	Mass loss(%) 质量损失 (%)	Change ratio 电压比(%)	Mass loss(%) 质量损失 (%)	Change ratio 电压比(%)	Temp. (°C)温度 (°C)
B1#	4210	26.71	0.00	100.00	0.00	99.17	0.00	99.98	0.01	100.00	57.8
B2#	4208	26.80	0.00	99.99	0.01	99.24	0.00	100.00	0.00	100.00	57.6
B3#	4222	27.01	0.00	100.00	0.00	99.22	0.00	100.00	0.00	99.98	57.9
B4#	4218	27.12	0.00	99.98	0.00	99.31	0.01	100.00	0.01	100.00	58.1
B5#	4219	26.89	0.00	99.99	0.01	99.35	0.00	99.98	0.00	100.00	58.4
B6#	4200	26.88	0.01	100.00	0.00	99.42	0.01	100.00	0.01	99.96	58.6
B7#	4202	26.89	0.00	100.00	0.00	99.28	0.00	100.00	0.00	100.00	57.9
B8#	4214	26.78	0.00	100.00	0.00	99.25	0.00	100.00	0.01	100.00	57.9

**Table 2: Crush or impact/ 表 2: 挤压或撞击**

Test 6: Crush or impact /试验 6 挤压或撞击	Sample No. 样品编号	C9#	C10#	C11#	C12#	C13#	C14#	C15#	C16#	C17#	C18#
	OCV prior to test (V) 试验前电压	3.275	3.278	3.269	3.265	3.264	3.271	3.276	3.275	3.274	3.273
	Temp. (°C) 温度	102.5	101.8	98.6	104.1	110.6	102.8	97.5	102.8	111.5	112.4

**Table 3: Overcharge / 表 3: 过充电**

Test 7: Overcharge/ 试验 7 过充电	Sample No. 样品编号	B19#	B20#	B21#	B22#	B23#	B24#	B25#	B26#
	OCV prior to test (V) 试验前电压	27.11	26.88	27.14	27.25	26.89	26.91	26.98	26.97



Table 4: Force discharge / 表 4: 强制放电

Test 8: Forced discharge/ 试验 8 强制 放电	Sample No. 样品编号	C27#	C28#	C29#	C30#	C31#	C32#	C33#	C34#	C35#	C36#
	OCV prior to test (V) 试验前电压	3.068	3.056	3.081	3.071	3.049	3.059	3.081	3.084	3.065	3.072
	Sample No. 样品编号	C37#	C38#	C39#	C40#	C41#	C42#	C43#	C44#	C45#	C46#
	OCV prior to test (V) 试验前电压	3.062	3.052	3.039	3.046	3.058	3.072	3.075	3.057	3.059	3.069



## photos



Figure 1 Front view of battery pack

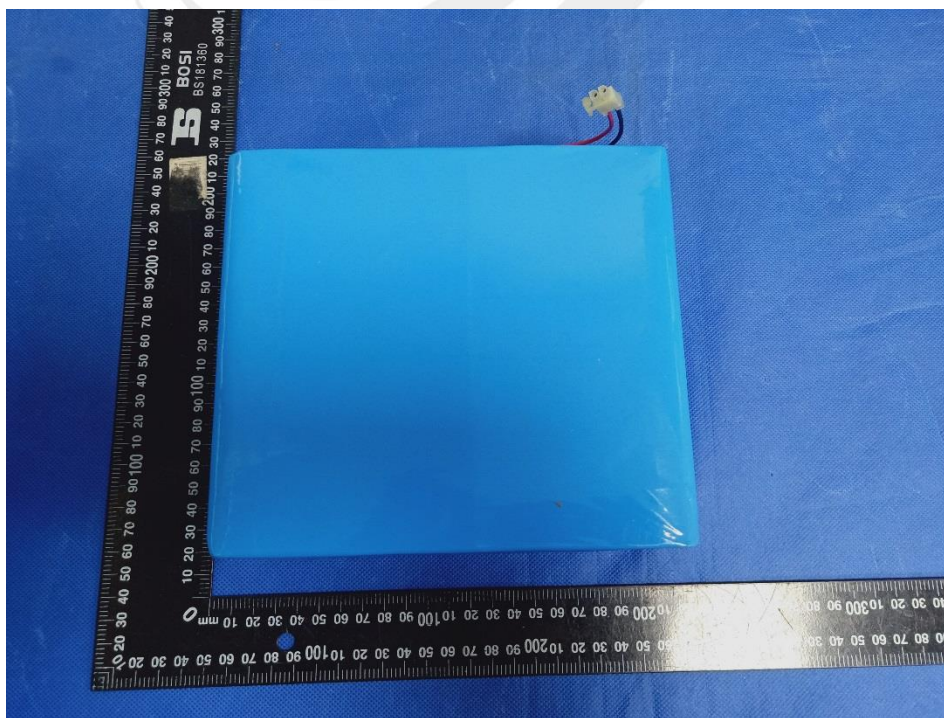


Figure 2 Back view of battery pack

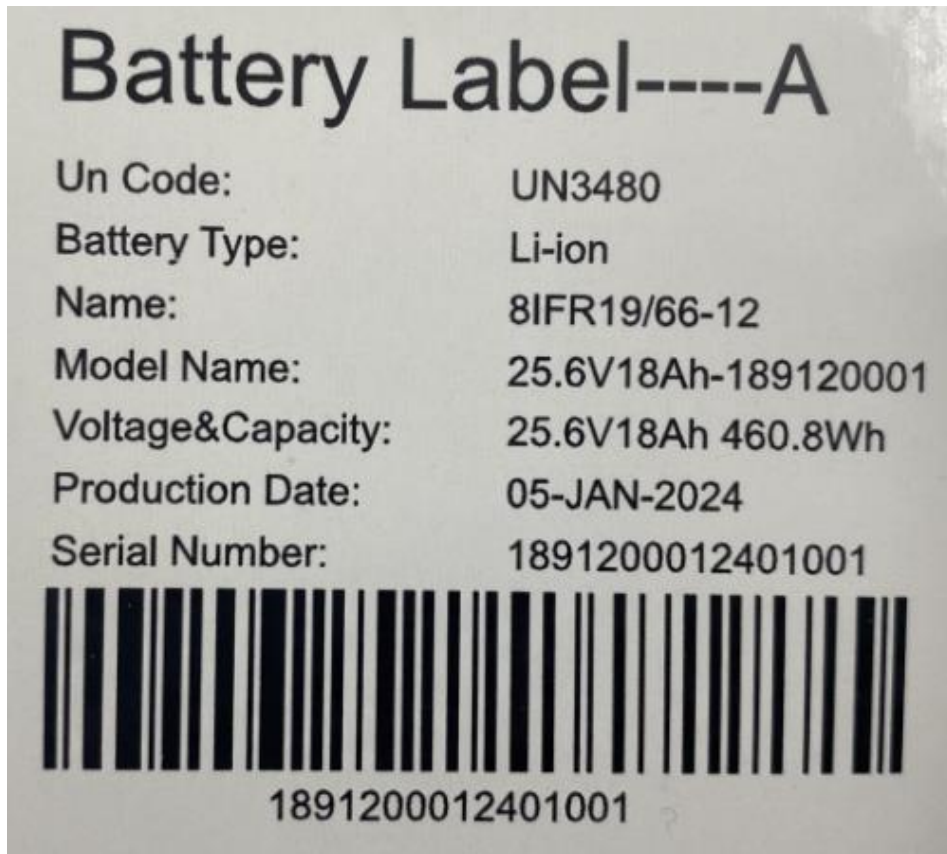


Figure 3 Label view of battery pack

====END OF TEST REPORT==