



NO.1116030270

检 验 报 告

Test Report

样品名称： 锂离子电池 L148F20 3.2V 20Ah 64Wh

Name of Sample: lithium ion battery L148F20 3.2V 20Ah 64Wh

委托单位： 中航锂电（洛阳）有限公司

Consignor: China Aviation Lithium Battery Co., Ltd



上海化工研究院检测中心

Shanghai Research Institute of Chemical Industry Testing Centre

上海化工研究院检测中心 检验报告

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样品名称 Name of Sample	中文 Chinese	锂离子电池 L148F20 3.2V 20Ah 64Wh			
	英文 English	lithium ion battery L148F20 3.2V 20Ah 64Wh			
样品编号 Sample No.	1116030270				
委托单位 Consignor	中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd				
生产单位 Manufacturer	中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd				
检验方法 Test method	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. 5/Amend. 1&Amend. 2 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 5/Amend. 1&Amend. 2 38.3				
判定标准 Criterion	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. 5/Amend. 1&Amend. 2 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 5/Amend. 1&Amend. 2 38.3				
样品外观 Appearance	蓝色 塑料薄膜外壳 Blue Plastic film shell				
样品接受日期 Accepted Date	2016-03-30	检测起迄日期 Test Date	2016-04-11 ~ 2016-05-12		
检测项目 Test Items	高度模拟; 热测试; 振动; 冲击; 外短路; 挤压; 强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Forced discharge				
检验结论 Conclusion	经检验, 该样品符合联合国《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. 5/Amend. 1&Amend. 2 38.3标准要求。 The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 5/Amend. 1&Amend. 2 38.3. 生效日期(Date): 2016-05-17				
备注 Comment	可充电锂电池芯 Rechargeable Lithium Cell. /				
委托单位地址 Consignor Address	/		邮政编码 Post Code 471003		

批准
Approver:
职务
Title:

张小明

审核
Checker:

许强

编制
Compiler:

夏浩

副总工程师(Vice chief engineer)



上海化工研究院检测中心 检验报告

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序号 No.	检验项目名称 Name of Test Items	标准要求或标准条款号 Standard requirement or The Clause Number of Standard	检测结果 Test Result	本项结论 Conclusion	备注 Remark
1	高度模拟 Altitude simulation	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. 5/Amend. 1 38.3 试验 T.1 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	热测试 Thermal test	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. 5/Amend. 1 38.3 试验 T.2 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动 Vibration	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. 5/Amend. 1 38.3 试验 T.3 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击 Shock	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. 5/Amend. 1 38.3 试验 T.4 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外短路 External short circuit	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. 5/Amend. 1 38.3 试验 T.5 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	挤压 Crush	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. 5/Amend. 1&Amend. 2 38.3 试验 T.6 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1&Amend. 2 38.3 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	强制放电 Forced discharge	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. 5/Amend. 1 38.3 试验 T.8 UN Manual of Tests and Criteria Section ST/SG/AC. 10/11/Rev. 5/Amend. 1 38.3 Test T.8	见附表 7 See Appendix 7	合格 Passed	/
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检验环境条件 Test Environment Condition		环境温度:19℃-21℃;环境湿度:/% Ambient temperature:19℃-21℃;Ambient humidity:/%			
分包检验情况 Subcontracted Test Condition		检验项目 Test Item	/		
		分包实验室 Subcontracted Laboratory	名称 Name	/	邮编 Post Code
			地址 Address	/	电话 Tel

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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting,
No Disassembly, No Rupture & No Fire.

上海化工研究院检测中心
检 验 报 告 - 附表 2

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序号 No.	2	检验项目名称 Name of Test Items		热测试 Thermal test				
样品 编号 Sample No.	样品状态 Sample Status	试验前 Before		试验后 After		质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他 现象 Other Event
		质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V			
001	1CYC完全充电 1CYC Fully charged	662.01	3.29	661.96	3.28	0.01	99.70	O
002	1CYC完全充电 1CYC Fully charged	657.70	3.29	657.63	3.28	0.01	99.70	O
003	1CYC完全充电 1CYC Fully charged	662.25	3.29	662.19	3.28	0.01	99.70	O
004	1CYC完全充电 1CYC Fully charged	664.39	3.29	664.30	3.28	0.01	99.70	O
005	1CYC完全充电 1CYC Fully charged	660.29	3.29	660.24	3.28	0.01	99.70	O
006	1CYC完全充电 1CYC Fully charged	663.68	3.29	663.61	3.28	0.01	99.70	O
007	1CYC完全充电 1CYC Fully charged	663.34	3.29	663.25	3.28	0.01	99.70	O
008	1CYC完全充电 1CYC Fully charged	665.28	3.29	665.19	3.28	0.01	99.70	O
009	1CYC完全充电 1CYC Fully charged	663.28	3.29	663.19	3.28	0.01	99.70	O
010	1CYC完全充电 1CYC Fully charged	662.12	3.29	662.06	3.28	0.01	99.70	O
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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting,
No Disassembly, No Rupture & No Fire.

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检验报告-附表6

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[illegible]

Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

上海化工研究院检测中心
检 验 报 告 - 附表 7

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序号 No.	7	检验项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No.	样品状态 Sample Status	其他现象 Other Event	
016	1CYC完全放电 1CYC Fully discharged	O	
017	1CYC完全放电 1CYC Fully discharged	O	
018	1CYC完全放电 1CYC Fully discharged	O	
019	1CYC完全放电 1CYC Fully discharged	O	
020	1CYC完全放电 1CYC Fully discharged	O	
021	1CYC完全放电 1CYC Fully discharged	O	
022	1CYC完全放电 1CYC Fully discharged	O	
023	1CYC完全放电 1CYC Fully discharged	O	
024	1CYC完全放电 1CYC Fully discharged	O	
025	1CYC完全放电 1CYC Fully discharged	O	
026	50CYC完全放电 50CYC Fully discharged	O	
027	50CYC完全放电 50CYC Fully discharged	O	
028	50CYC完全放电 50CYC Fully discharged	O	
029	50CYC完全放电 50CYC Fully discharged	O	
030	50CYC完全放电 50CYC Fully discharged	O	
031	50CYC完全放电 50CYC Fully discharged	O	
032	50CYC完全放电 50CYC Fully discharged	O	
033	50CYC完全放电 50CYC Fully discharged	O	
034	50CYC完全放电 50CYC Fully discharged	O	
035	50CYC完全放电 50CYC Fully discharged	O	
备注: D-解体 F-起火 O-无解体、无起火。 Note: D-Disassembly F-Fire O-No Disassembly & No Fire.			

上海化工研究院检测中心

检验报告-附图

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NO. 1116030270

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CNAS IB0071



NO.2616030112

SAFETY DATA SHEET

Product Name: Lithium-ion Battery Model: L148F20
3.2V 20Ah 64Wh

Revision Date: 2016-05-12

Compiler: Fengzhao

Checker: Dongxuesheng

Approver: Zhangxiangjin



Shanghai Research Institute of Chemical Industry Testing Centre

China Aviation Lithium Battery Co.,Ltd.

SAFETY DATA SHEET

Lithium-ion Battery Model: L148F20 3.2V 20Ah 64Wh

SECTION1 PRODUCT AND COMPANY IDENTIFICATION

Product name: Lithium-ion Battery Model: L148F20 3.2V 20Ah 64Wh
Company: China Aviation Lithium Battery Co.,Ltd.
Address: No.66, Binhe Road (North), Gaoxin District, Luoyang City, Henan Province,
471003, P.R.China
Email: zhangxiang888@calb.cn
Fax: 0086-379-60697339
Emergency Phone: 0086-379-60697385
SDS Number: 2616030112
SDS Date: 2016-05-12

SECTION2 HAZARDS IDENTIFICATION

Hazards Identification:

Class 9, miscellaneous. The battery has passed the test items of UN Model Regulations, Manual of Test and Criteria Section UN 38.3.

Emergency Overview:

Caution: Avoid contact and inhalation the electrolyte contained inside the battery.

SECTION3 INFORMATION ON INGREDIENTS

Product name: Lithium-ion Battery Model: L148F20 3.2V 20Ah 64Wh

Ingredient	Concentration	CAS No.	EC No.
Lithium iron phosphate	23.2%	15365-14-7	/
Graphite	13.2%	7782-42-5	231-955-3
Copper	9.5%	7440-50-8	231-159-6
Aluminum	5.4%	7429-90-5	231-072-3
Lithium hexafluorophosphate	2.4%	21324-40-3	244-334-7
Polypropylene	5.5%	9003-07-0	/

SECTION4 FIRST-AID MEASURES

Skin Exposure:

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

Eye Exposure:

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

Inhalation Exposure:

If inhaled the internal materials of battery, remove immediately to fresh air and seek medical attention.

Oral Exposure:

If swallowed the internal materials of battery, do not induce vomiting. Seek immediate medical attention.

SECTION5 FIRE FIGHTING MEASURES

Extinguishing Media:

Suitable: Dry chemical, Sandy soil, Carbon dioxide or appropriate foam.

Firefighting:

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific hazards: Emit toxic fumes under fire conditions.

SECTION6 ACCIDENTAL RELEASE MEASURES

Procedure of Personal Precaution:

If batteries show signs of leaking, avoid skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean up. Mix with inert material (e.g. dry sand, vermiculite) and transfer to sealed container for disposal.

SECTION7 HANDLING AND STORAGE

Handling:

Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Avoid mechanical or electrical abuse. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly. In case of a battery unintentionally be crushed, rubber gloves must be used to handle all battery components. Avoid contact with eyes, skin. Avoid inhalation. No smoking at working site. Materials to Avoid: Strong oxidizing agents, Corrosives.

Storage:

Store in a cool, well-ventilated area. Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Materials to Avoid: Strong oxidizing agents, Corrosives.

SECTION8 EXPOSURE CONTROL/PPE

Engineering Controls:

Use ventilation equipment if available. Safety shower and eye bath.

Personal Protective Equipment:

Respiratory System: Not necessary under conditions of normal use.

Eyes: Not necessary under conditions of normal use.

Clothing: Wear appropriate protective clothing.

Hand: Safety gloves.

Other Protect:

No smoking, drinking and eating at working site. Wash thoroughly after handling.

SECTION9 PHYSICAL/CHEMICAL PROPERTIES

Appearance: Blue plastics film shell

Odor: Odorless

Melting Point/°C: >300°C

Solubility: Partial soluble in water

SECTION10 STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Avoid exposure to heat and open flame. Avoid mechanical or electrical abuse. Prevent short circuits.

Prevent movement which could lead to short circuits.

Materials to Avoid:

Strong oxidizing agents, Corrosives.

Hazardous Polymerization:

Will not occur.

Hazardous Decomposition Products:

Metal oxides, CO, CO₂.

SECTION11 TOXICOLOGICAL INFORMATION

Toxicity Data:

Not available.

Irritation Data:

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

SECTION12 ECOLOGICAL INFORMATION

No data available.

SECTION13 DISPOSAL CONSIDERATION

Appropriate Method of Disposal of Substance:

Lithium batteries are best disposed of as a non-hazardous waste when fully or mostly discharged. Contact a licensed professional waste disposal service to dispose of large quantities materials.

SECTION14 TRANSPORT INFORMATION

The battery has passed the test items of UN Model Regulations, Manual of Test and Criteria Section UN 38.3.

RID/ADR: Proper Shipping Name: Lithium ion batteries
UN Number: UN3480
Hazard Class: 9

IATA: Proper Shipping Name: Lithium ion batteries
 UN Number: UN3480
 Hazard Class: 9
 The product shall meet the General Requirements and section IA of Packaging Instruction 965 (IATA DGR).

IMO: Proper Shipping Name: Lithium ion batteries
 UN Number: UN3480
 Hazard Class: 9
 EmS No. : F-A, S-I

SECTION15 REGULATORY INFORMATION

ICAO:

1. Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480, PI 965) and lithium metal cell/batteries (UN 3090, PI 968) are forbidden for carriage on passenger aircraft.
2. Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3480, PI 965) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.
3. A shipper is not permitted to offer for transport more than one (1) package prepared according to Section II of PI 965 and PI 968 in any single consignment. Not more than one (1) package prepared in accordance with Section II of PI 965 and PI 968 may be placed into an overpack.
4. Packages prepared according to Section II of PI 965 and PI 968 must be offered to the operator separately from other cargo and must not be loaded into a unit load device (ULD) before being offered to the operator.

SECTION16 OTHER INFORMATION

Date:

2016-05-12

Department:

Shanghai Research Institute of Chemical Industry Testing Centre
 Tel (Fax) : 8621-52815377/52800971/52807275/52811034/52569800

Revision:

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Other Information:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.





CNAS IB0071



NO.2616030112

安全技术说明书 (SDS)

中文名称: 锂离子电池 型号: L148F20 3.2V 20Ah 64Wh

英文名称: Lithium-ion Battery Model: L148F20 3.2V 20Ah 64Wh

生效日期: 2016年05月12日

编制人: 冯卓

审核人: 董学胜

批准人: 张小松



上海化工研究院检测中心

中航锂电（洛阳）有限公司

安全技术说明书

SDS

锂离子电池 型号：L148F20 3.2V 20Ah 64Wh

第一部分 化学品及企业标识

中文名称：锂离子电池 型号：L148F20 3.2V 20Ah 64Wh
英文名称：Lithium-ion Battery Model: L148F20 3.2V 20Ah 64Wh
企业名称：中航锂电（洛阳）有限公司
地址：河南省洛阳市高新区滨河北路66号
邮编：471003
E-mail: zhangxiang888@calb.cn
传真号码：0086-379-60697339
企业应急电话：0086-379-60697385
技术说明书编码：2616030112
生效日期：2016年05月12日

第二部分 危险性概述

危险性类别：9类，杂项。通过联合国《关于危险货物运输的建议书 试验和标准手册》UN38.3试验。
侵入途径：眼睛和皮肤接触、吸入电池内的物质。
健康危害：无详细的毒理学研究。避免直接接触电池内的物质，防止吸入。

第三部分 成分/组成信息

化学品名称：锂离子电池 型号：L148F20 3.2V 20Ah 64Wh

成份	含量	CAS NO.	EC NO.
磷酸亚铁锂	23.2%	15365-14-7	/
石墨	13.2%	7782-42-5	231-955-3
铜	9.5%	7440-50-8	231-159-6
铝	5.4%	7429-90-5	231-072-3
六氟磷酸锂	2.4%	21324-40-3	244-334-7
聚丙烯	5.5%	9003-07-0	/

第四部分 急救措施

皮肤接触：若接触到电池内的物质，立即用肥皂和大量清水彻底冲洗皮肤。

眼睛接触:	若接触到电池内的物质,立即提起眼睑,用流动清水冲洗15分钟以上。
吸入:	若吸入电池内的物质,立即脱离现场至空气新鲜处。
食入:	若食入电池内的物质,不宜催吐,立即就医。

第五部分 消防措施

危险特性:	不属于易燃危险品。
灭火方法及灭火剂:	可用干粉、砂土、泡沫和二氧化碳灭火。
灭火注意事项及措施:	消防员应戴自给正压式呼吸器,穿消防防护服以防止皮肤和眼睛接触。

第六部分 泄漏应急处理

应急处理:	若电池内的物质泄漏,用洁净铲子收集于干燥、洁净、有盖的容器中待处置。处理人员应穿合适的防护服。
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第七部分 操作处置与储存

操作处置注意事项:	操作人员应经过培训,严格遵守操作规程。建议操作人员穿一般作业防护服,戴安全手套。远离火种、热源,避免阳光直射。工作场所严禁吸烟。工作场所应有通风系统和设备。避免随意拆卸电池和弄错正负极。须牢固在内包装中,以有效防止短路和防止可导致短路的移动。万一电池内的物质泄漏,避免眼睛、皮肤直接接触,避免吸入。应与强氧化剂、腐蚀品分开存放。
储存注意事项:	储存于阴凉、通风的库房内。远离火种、热源,避免阳光直射。应与强氧化剂、腐蚀品分开存放。储存区配备相应品种和数量的消防器材、泄漏应急处理设备和合适的收容材料。

第八部分 接触控制/个体防护

最高容许浓度:	未制定标准
监测方法:	无
工程控制:	有通风系统和设备。提供安全淋浴和洗眼设备。
呼吸系统防护:	正常使用情况下不需要。
眼睛防护:	正常使用情况下不需要。
身体防护:	穿一般作业防护服。
手防护:	戴安全手套。
其他防护:	工作现场严禁吸烟、进食。工作后,淋浴更衣。

第九部分 理化特性

外观与性状:	蓝色塑料薄膜外壳
气味:	无臭
熔点:	>300℃
溶解性:	部分溶于水

第十部分 稳定性与反应活性

稳定性:	常温常压下稳定
避免接触的物质:	强氧化剂、腐蚀品。
避免接触的条件:	误操作,高温,防止短路和防止可导致短路的移动。
聚合危害:	不聚合。

有害分解产物：金属氧化物、CO、CO₂等。

第十一部分 毒理学资料

急性毒性：无资料。
刺激性：其中的电解质对眼睛、皮肤有刺激性。

第十二部分 生态学资料

生态毒性：无资料。
持久性和降解性：无资料。
生物积累潜力：无资料。
在土壤中的流动性：无资料。

第十三部分 废弃处理

废弃物性质：废弃电池的处置应符合《中华人民共和国固体废物污染环境防治法》、《废电池污染防治技术政策》等有关法律、法规、政策和标准的要求。

第十四部分 运输信息

通过联合国《关于危险货物运输的建议书 试验和标准手册》UN38.3试验。

RTD/ADR：运输名称：锂离子电池组
UN编号：UN3480
危险性类别：9

IATA：运输名称：锂离子电池组
UN编号：UN3480
危险性类别：9
空运中本品应满足IATA DGR包装说明965的基本要求和第IA部分的规定。

IMO：运输名称：锂离子电池组
UN编号：UN3480
危险性类别：9
EmS编号：F-A, S-I

第十五部分 法规信息

国内法规：本品在GB 12268-2012《危险货物品名表》中危险货物编号为3480，名称和说明：锂离子电池组，包装类别：II。

ICAO：本品在《铁路危险货物品名表》（2009版）中的铁危编号为91013，品名：锂电池组。

1. 除非依据《技术细则》的相关要求取得豁免，单独包装的锂离子电池（芯）（UN 3480，PI 965）和锂金属电池（芯）（UN 3090，PI 968）货物禁止使用客机运输。
2. 除非依据《技术细则》的相关要求取得特别批准，按照包装说明965要求运输的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态不得超过其额定容量的30%。
3. 在任何一票货物中，按照包装说明965第II节或968第II节要求运输的锂电池货物包装件不得超过一个。每个集合包装中所装的按照包装说明965第II节或968第II节要求运输的锂电池货物包装件不得超过一个。
4. 按照包装说明965或968第II节要求运输的锂电池货物包装件或集合包装必须与其它货物分开交运，且在交运前不得装入集装器。

第十六部分 其他信息

填表时间：2016年05月12日

填表部门:

上海化工研究院检测中心

电话(传真):8621-52815377/52800971/52807275/52811034/52569800

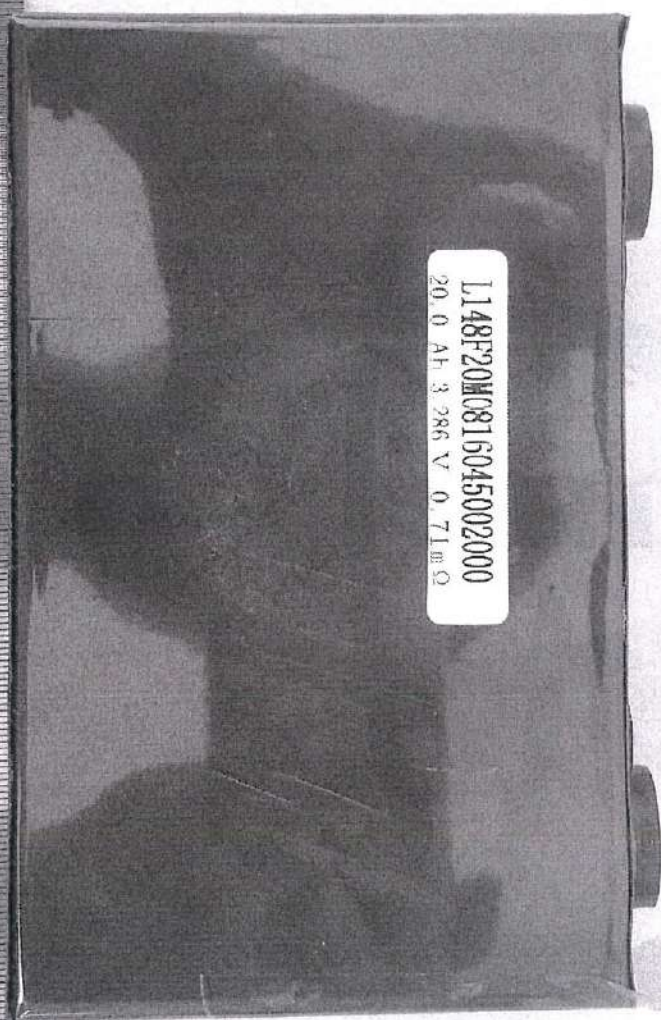
修改信息:

第0次修订

其他信息:

本说明书根据委托方提供的成分含量信息和我中心现有知识编写。使用者有责任对说明书内容的正确性与完整性评估后,根据实际情况自行决定其适用性,并对使用后果承担法律责任。





L148F20MC816045002000
20.0 Ah 3.286 V 0.71 mΩ





NO.2116034081



货物运输条件鉴定书

Certification

for Safe Transport of Chemical Goods

危险品

样品名称： 锂离子电池L148F20 3.2V 20Ah 64Wh

Sample name: lithium ion battery L148F20 3.2V 20Ah 64Wh

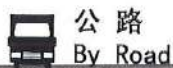
送检单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd

生产单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd



上海化工研究院检测中心
(上海天科化工检测有限公司)

Shanghai Research Institute of Chemical Industry Testing Centre
(Shanghai TECH. Chemical Industry Testing Co.,Ltd)



货物运输条件鉴定书

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样品名称 Sample name	中文 Chinese	锂离子电池L148F20 3.2V 20Ah 64Wh		
	英文 English	lithium ion battery L148F20 3.2V 20Ah 64Wh		
送检单位 Consignor		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
生产单位 Manufacturer		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
检查方法、程序 Inspection method and procedure		GB12268-2012《危险货物名称表》 GB12268-2012 List of Dangerous Goods		
样品外观 Sample appearance		蓝色塑料薄膜外壳 Blue Plastic film shell		
包装件信息 Package information		/		
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity / 锂含量Li content	放置方式 Placement
1	可充电锂离子电池芯 Rechargeable Li-ion cell	L148F20	20Ah 64Wh	电池单独运输 Battery only
鉴定结论 IDENTIFICATION CONCLUSION	1. 危险性识别(Hazards identification) 杂项。 Miscellaneous.			
	2. 公路运输按照GB12268-2012办理的类项(Suggestion according to GB12268-2012) Shipping name:Lithium ion batteries Class or division:9 UN Number:UN3480			
	3. 包装要求(Packaging requirements) 按II类包装要求办理。 Packaging Group II.			
	检查日期: Inspection Date: 2016-05-18 签发日期: Issue Date: 2016-05-18 生效日期: Valid Date: 2016-05-18			
备注 Comment		/		

批准
Approver:

张小明

审核
Checker:

董学胜

主检
Appraiser:

俞斌虎



货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

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序号 No.	检查结果及其他事项 Inspection results and other things
1	本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.
2	完成包装件应满足II级包装的性能要求。 The completed package should meet the Packing Group II performance requirements.
3	电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.
4	/
5	/
6	/
7	/
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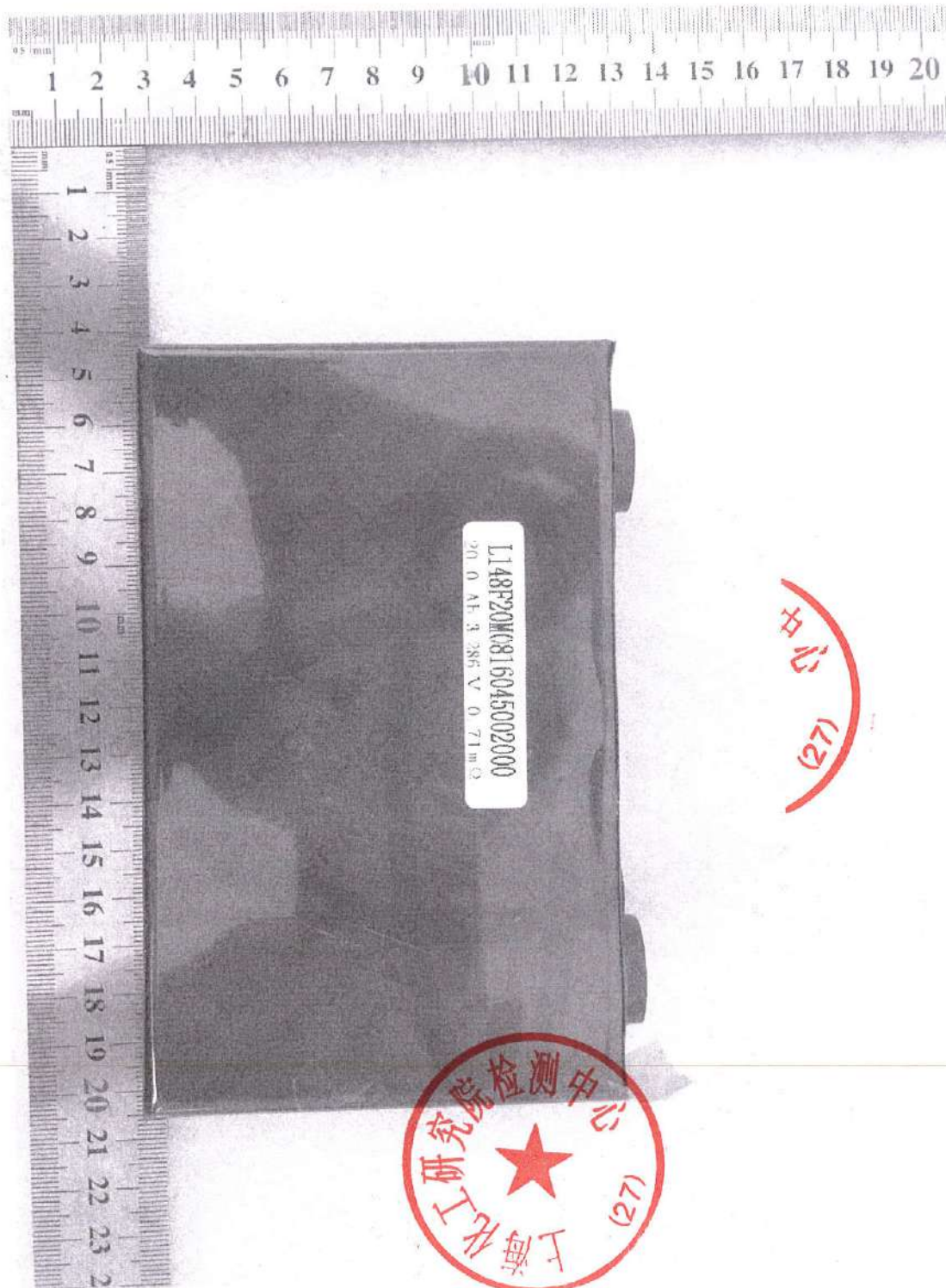
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货物运输条件鉴定书

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上海化工研究院检测中心

Shanghai Research Institute of Chemical Industry Testing Centre

batteryfiles.com



NO. 2116034080



货物运输条件鉴定书

Certification

for Safe Transport of Chemical Goods

危险品

样品名称： 锂离子电池L148F20 3.2V 20Ah 64Wh

Name of Goods: lithium ion battery L148F20 3.2V 20Ah 64Wh

送检单位： 中航锂电（洛阳）有限公司

生产单位： 中航锂电（洛阳）有限公司



上海化工研究院检测中心
(上海天科化工检测有限公司)

Shanghai Research Institute of Chemical Industry Testing Centre
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货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

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样品名称 Name of Goods	中文 Chinese	锂离子电池L148F20 3.2V 20Ah 64Wh
	英文 English	lithium ion battery L148F20 3.2V 20Ah 64Wh
送检单位Consignor		中航锂电（洛阳）有限公司
生产单位Manufacturer		中航锂电（洛阳）有限公司
检查方法、程序 Inspection Methods and Procedures		《铁路危险货物品名表》(2009) List of Dangerous Goods by Rail(2009)
样品外观与气味 Appearance & Odor		蓝色塑料薄膜外壳，无臭 Blue Plastic film shell, Odorless
IDENTIFICATION 鉴定结论	1. 危险性识别(Hazards identification) 杂项 Miscellaneous	
	2. 铁路运输按照铁路危险货物品名表办理的类项(Suggestion according to List of dangerous goods by rail) 品名：锂电池组 危险性分类：9 铁危编号：91013。	
	3. 包装要求(Packaging requirements) 按91013要求办理。 Suggestion according to 91013.	
检查日期：2016年03月30日 至 2016年05月18日 生效日期：2016年05月18日		
备注 Comment	对于铁路运输，本报告一年有效。 The certification is valid in a year from the date subscribed on it when it used for rail transportation.	

批准
Approver:

张小明

审核
Checker:

董学胜

主检
Appraiser:

俞斌虎



货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

NO. 2116034080

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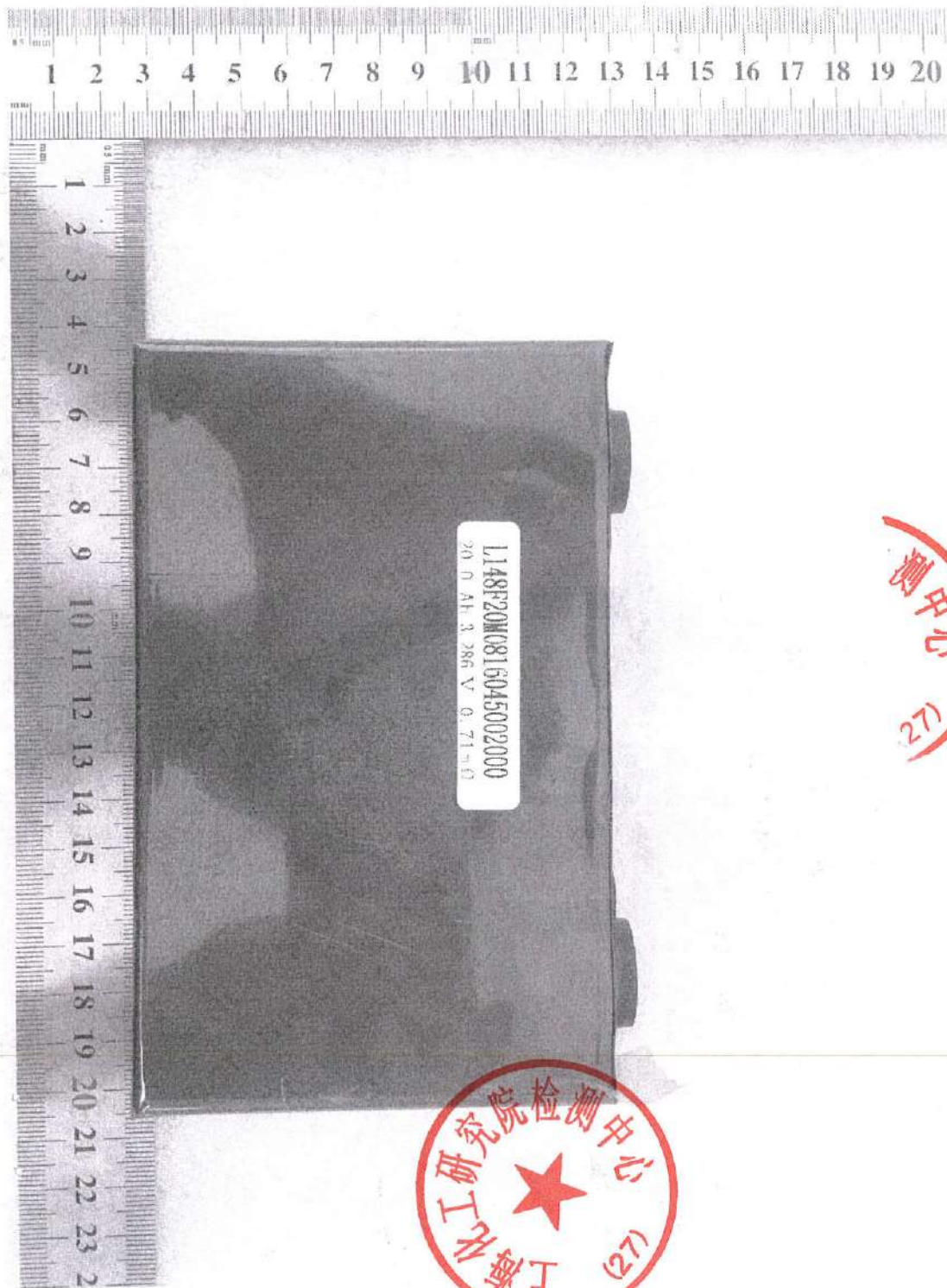
试验项目名称 Name of Test Items	试验结果 Test Result
高度模拟 Altitude simulation (38.3 test 1)	无渗漏、无排气、无解体、无破裂以及起火。测试后的开路电压大于试验之前的90%。试验符合标准要求。 No leakage, no venting, no disassembly, no rupture and no fire and the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The test result conforms to the requirements of standard.
热测试 Thermal test (38.3 test 2)	无渗漏、无排气、无解体、无破裂以及起火。测试后的开路电压大于试验之前的90%。试验符合标准要求。 No leakage, no venting, no disassembly, no rupture and no fire and 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 test result conforms to the requirements of standard.
振动 Vibration (38.3 test 3)	无渗漏、无排气、无解体、无破裂以及起火。测试后的开路电压大于试验之前的90%。试验符合标准要求。 No leakage, no venting, no disassembly, no rupture and no fire and 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 test result conforms to the requirements of standard.
冲击 Shock (38.3 test 4)	无渗漏、无排气、无解体、无破裂以及起火。测试后的开路电压大于试验之前的90%。试验符合标准要求。 No leakage, no venting, no disassembly, no rupture and no fire and 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 test result conforms to the requirements of standard.
外短路 External short circuit (38.3 test 5)	在试验过程中及试验后的6h内表面温度 $\leq 170^{\circ}\text{C}$, 无解体、无破裂以及起火现象。试验符合标准要求。 The external temperature does not exceed 170°C , no disassembly, no rupture and no fire during the test and within six hours after the test. The test result conforms to the requirements of standard.
碰撞 Impact (38.3 test 6)	在试验过程中及试验后的6h内表面温度 $\leq 170^{\circ}\text{C}$, 无解体、起火现象。试验符合标准要求。 The external temperature does not exceed 170°C , no disassembly, no fire during the test and within six hours after the test. The test result conforms to the requirements of standard.
过充电 Overcharge (38.3 test 7)	在试验过程中和试验后7天内无解体 and 起火。试验符合标准要求。 No disassembly, no fire during the test and within seven days after the test. The test result conforms to the requirements of standard.
强制放电 Forced discharge (38.3 test 8)	/
其它 Other	电池或电池芯样品须固定在可完全封闭的内包装中并装在坚固的外包装内。样品须被保护以防止短路。The Sample of the battery or cell is packed in inner packagings that completely enclose the battery or cell. The sample is packed in strong outer packing. The sample is protected so as to prevent short circuits.

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检 查
CNAS IB0071

货物运输条件鉴定书

Certification

for Safe Transport of Chemical Goods

危险品

样品名称： 锂离子电池L148F20 3.2V 20Ah 64Wh

Sample name: lithium ion battery L148F20 3.2V 20Ah 64Wh

送检单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd

生产单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd



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Certification for Safe Transport of Chemical Goods

样品名称 Sample name	中文 Chinese	锂离子电池L148F20 3.2V 20Ah 64Wh		
	英文 English	lithium ion battery L148F20 3.2V 20Ah 64Wh		
送检单位 Consignor		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
生产单位 Manufacturer		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
检查方法、程序 Inspection method and procedure		国际海事组织《国际海运危险货物规则》(2014版) IMO International Maritime Dangerous Goods Code (2014 Edition)		
样品外观 Sample appearance		蓝色塑料薄膜外壳 Blue Plastic film shell		
包装件信息 Package information		/		
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity /锂含量Li content	放置方式 Placement
1	可充电锂离子电池芯 Rechargeable Li-ion cell	L148F20	20Ah 64Wh	电池单独运输 Battery only
鉴定结论 IDENTIFICATION CONCLUSION	1. 危险性识别(Hazards identification) 杂项。 Miscellaneous.			
	2. 海运按照国际海事组织《国际海运危险货物规则》办理的类项(Suggestion according to IMO IMDG Code) Shipping name:Lithium ion batteries Class or division:9 UN Number:UN3480			
	3. 包装要求(Packaging requirements) 按UN3480要求办理。 Suggestion according to UN3480.			
	检查日期: Inspection Date: 2016-05-18 签发日期: Issue Date: 2016-05-18 生效日期: Valid Date: 2016-05-18			
备注 Comment		/		

批准
Approver: 张小明

审核
Checker: 董学胜

主检
Appraiser: 俞斌虎



货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

NO. 2116034077

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序号 No.	检查结果及其他事项 Inspection results and other things
1	本报告所述锂电池按照《国际海运危险货物规则》(2014版) 2.9.4.5规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management programme as described in IMDG CODE 2014 EDITION 2.9.4.5 .
2	本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.
3	按UN3480要求办理。 Suggestion according to UN3480.
4	电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.
5	/
6	/
7	/
-验证码:860728-	

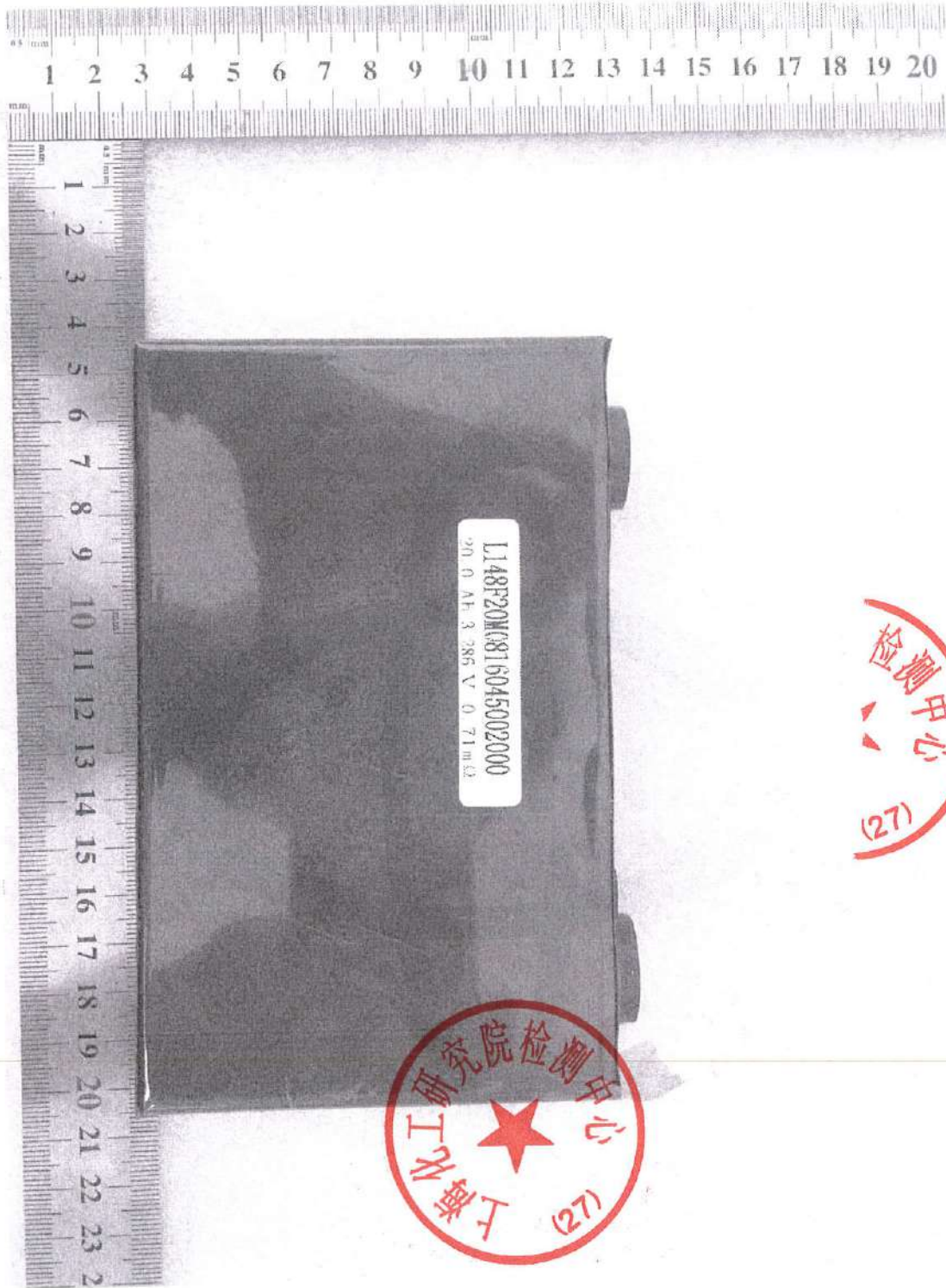


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仅限货机
CAO



NO.2116034076



检 查
CNAS IB0071

货物运输条件鉴定书

Certification

for Safe Transport of Chemical Goods

4月1日
新规则

危险品

样品名称： 锂离子电池L148F20 3.2V 20Ah 64Wh

Sample name: lithium ion battery L148F20 3.2V 20Ah 64Wh

送检单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd

生产单位： 中航锂电（洛阳）有限公司
China Aviation Lithium Battery Co., Ltd



上海化工研究院检测中心
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货物运输条件鉴定书

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Certification for Safe Transport of Chemical Goods

样品名称 Sample name	中文 Chinese	锂离子电池L148F20 3.2V 20Ah 64Wh		
	英文 English	lithium ion battery L148F20 3.2V 20Ah 64Wh		
送检单位 Consignor		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
生产单位 Manufacturer		中航锂电(洛阳)有限公司 China Aviation Lithium Battery Co., Ltd		
检查方法、程序 Inspection method and procedure		国际航空运输协会《危险品规则》57版及增补和增补II IATA Dangerous Goods Regulations (DGR) 57th Edition with Addendum and Addendum II		
样品外观 Sample appearance		蓝色塑料薄膜外壳 Blue Plastic film shell		
包装件信息 Package information		锂电池总净重16.00kg, 锂电池总数量24颗。 Lithium battery total net weight:16.00kg, Lithium battery total quantity:24.		
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity / 锂含量Li content	放置方式 Placement
1	可充电锂离子电池芯 Rechargeable Li-ion cell	L148F20	20Ah 64Wh	电池单独运输 Battery only
鉴定结论 IDENTIFICATION CONCLUSION	1. 危险性识别(Hazards identification) 杂项。 Miscellaneous.			
	2. 空运按照国际航空运输协会《危险品规则》办理的类项(Suggestion according to IATA DGR) Shipping name:Lithium ion batteries Class or division:9 UN Number:UN3480			
	3. 包装要求(Packaging requirements) 按包装说明965第IA部分要求办理。 The goods are packaged according to the Packaging Instruction 965 section IA			
	仅限货机。 Cargo Aircraft Only.			
检查日期: Inspection Date:		签发日期: Issue Date:		生效日期: Valid Date:
2016-05-18		2016-05-18		2016-05-18
备注 Comment		/		



批准
Approver: 张小明

审核
Checker: 董学敏

主检
Appraiser: 俞斌虎



货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

NO. 2116034076

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序号 No.	检查结果及其他事项 Inspection results and other things
1	本报告所述锂电池按照《危险品规则》(57版) 3.9.2.6(e)规定的质量管理体系进行制造。 本报告所述锂电池不属于因安全原因召回的锂电池。 本报告所述锂电池不进行以回收或处置为目的的航空运输, 不属于废弃锂电池。 Lithium cells and batteries listed in this report were manufactured under the quality management programme as described in IATA DGR 57th 3.9.2.6(e). Lithium cells and batteries listed in this report are not the defective cells or batteries returned to the manufacturer for safety reasons. Lithium cells and batteries listed in this report are not waste lithium cells or batteries, and they will not be shipped for recycling or disposal.
2	本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.
3	锂电池完全封装在内包装内, 位于坚固的外包装中。完成包装件应满足II级包装的性能要求。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong outer packaging. The completed package should meet the Packing Group II performance requirements.
4	电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.
5	每个包装件应贴有9类危险性标签。 每个包装件应贴有“仅限货机”标签。 Each package should be labelled with the Class 9 hazard label. Each package should be labelled with the "Cargo Aircraft Only" label.
6	根据送检单位声明, 本报告所述锂离子电池交付运输时, 其荷电状态不超过设计额定容量的30%。 Lithium ion cells and batteries should be offered for transport at a state of charge (SoC) not to exceed 30% of their rated design capacity.
7	/
-验证码:609581-	



