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物质安全资料表

Material Safety Data Sheet (MSDS)

制表单位：深圳市比亚迪锂电池有限公司

Company：Shenzhen BYD Battery Co., Ltd.

制表地址：深圳市坪山新区坑梓街道深汕路 1301 号

Address：No.1301, Shenshan Road, Kengzi
Town, Pingshan, Shenzhen

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1 化学品及企业标识 Identification of the chemical and supplier

产品标识 Product identifier

产品名称 Product Name	锂离子电池/组 Lithium ion battery
电池型号 Type	单体电池（C17 (FADM07325)）及电池包 Cell（C17 (FADM07325)）and cell packs
电池容量 Capacity	75 Ah
电池能量 Nominal energy	0.240 kWh

安全物质资料表提供企业信息 Details of the supplier of the MSDS

制造商名称 Name of the company	深圳市比亚迪锂电池有限公司 Shenzhen BYD Battery Co., Ltd.
制造商地址 Address of the company	深圳市坪山新区坑梓街道深汕路 1301 号 No.1301, Shenshan Road, Kengzi Town, Pingshan, Shenzhen
邮编 Post code	518122
制造商电话 Telephone number	+86-755-89888888
紧急联络电话 Emergency phone number	+86-752-5118888

澳洲进口商联系方式 Details of the Australian Importer

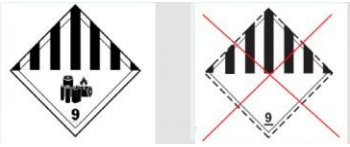
Name of the company	Ultra Green Energy Pty Ltd
Address of the company	D11/2A Westall Road, Springvale 3171
Post code	3171
Telephone number	0452450166
Emergency phone number	0452450166

2 危险性概述 Hazards identification

NFPA 危险性识别标签 NFPA label for hazard identification

危险识别图形 Hazard identification graphics	危险种类 Hazard	危险等级 Value
	健康危害 Health	0
	易燃性 Flammability	1
	反应性 Instability	0
	特殊危害 Special	-

CN 危险性识别标签 CN label for hazard identification

象形图 Hazard pictograms	
危险描述 Description	GB6944 第九类危险品 GB6944 9 th Goods



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危险性说明 Hazard statements

危险描述 Description	正常使用情况下没有危险及危害性，风险仅发生于电池机械、热或电滥用情况。一旦发生会导致内部电解液泄露，电解液是可燃的，需尽快远离火源。 Not classified as dangerous or hazardous with normal use. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused. If this occurs, it may cause electrolyte leakage. Electrolyte is flammable, in case of electrolyte leakage, move the battery from fire immediately.
毒性说明 Hazard	电解液泄露及电池燃烧产生的气体会刺激眼睛、皮肤及咽喉 It may cause electrolyte leakage and vapour generated from burning batteries, may make eyes, skin and throat irritate.
吸入 Inhalation	正常使用情况不会发生，被破坏的电池产生的气体及烟雾会刺激呼吸道 Not classified as dangerous or hazardous with normal use. Vapors or mists from a ruptured cell may cause respiratory irritation.
吞入 Ingestion	正常使用情况不会发生，吞入被打开的电池内含物会刺激嘴部及食道 Not classified as dangerous or hazardous with normal use. Swallowing the contents of an open cell can cause serious chemical burns of mouth and esophagus.
皮肤接触 Skin contact	正常使用情况不会造成危害，接触被打开的电池内含物会刺激灼伤皮肤 Not classified as dangerous or hazardous with normal use. Skin contact with contents of an open cell can cause severe irritation or burns to the skin.
眼睛接触 Eye contact	正常使用情况不会造成危害，接触被打开的电池内含物会刺激灼伤眼睛 Not classified as dangerous or hazardous with normal use. Eye contact with contents of an open cell can cause severe irritation or burns to the eye.

事故响应 Response

如误吸入 Inhalation	立即转移至空气新鲜处，进行医护处理 Remove to fresh air immediately. Take a medical treatment.
如误吞入 Ingestion	立即就医，不得喂食 Take a medical treatment. Induce vomiting unless patient is unconscious.
如皮肤接触 Skin contact	用大量水及肥皂清洗接触面，并进行医护处理 Wash the contact areas off immediately with plenty of water and soap. Take a medical treatment.
如眼睛接触 Eye contact	立即用大量清水冲洗至少 15 分钟，不要揉擦，并进行医护处理 Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment.

3 成分/组分信息 Composition/information on ingredients

成分 Components	CAS#	%（按重量） %（by weight）
磷酸铁锂 LiFePO ₄	15365-14-7	25-35
碳 Carbon	7440-44-0	12-22



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电解液-六氟磷酸锂 Electrolyte - LiPF ₆	21324-40-3	18-25
电解液-溶剂 Electrolyte -Solvent	/	
聚丙烯 PP	9003-07-0	2-6
铜 Copper	7440-50-8	10-18
铝 Aluminum	7429-90-5	10-20

4 急救措施 First aid measures

急救措施描述 Description of first aid measure

皮肤接触 Skin contact	<p>移开受到污染的衣物，用肥皂和水彻底清洗或淋浴至少 15 分钟，及时联系医务人员</p> <p>Remove contaminated clothes and rinse skin with plenty of water or shower for at least 15 minutes. Take a medical treatment immediately.</p>
眼睛接触 Eye contact	<p>立刻用水连续冲洗眼睛至少 15 分钟，翻动上下眼睑，及时联系医务人员</p> <p>Immediately flush eyes with plenty of water continuously for at least 15 minutes, occasionally lifting the upper and lower eyelids. Take a medical treatment immediately.</p>
吸入 Inhalation	<p>用棉布盖住嘴和鼻，移到空气新鲜处保持平静，立即就医；当呼吸困难或出现昏厥时，要进行人工呼吸</p> <p>Cover the victim in a blanket, move to the place of fresh air and keep quiet. Take a medical treatment immediately. When dyspnea (breathing difficulty) or asphyxia (breath-bald), give artificial respiration immediately.</p>
摄入 Ingestion	<p>喝至少 2 杯牛奶或水，立即就医，不得进食</p> <p>Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Take a medical treatment immediately.</p>

对施救者的忠告 Advice for protecting the rescuer

1	<p>远离高温和火源</p> <p>Move away from the fire and heat.</p>
2	<p>避免吸入蒸气</p> <p>Avoid contact with skin and eyes.</p>
3	<p>避免接触皮肤和眼睛</p> <p>Avoid inhalation of vapour or mist.</p>
4	<p>使用个人防护装备避免人体接触</p> <p>Use personal protective equipment.</p>

5 消防措施 Firefighting measures

灭火介质 Extinguishing media



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小的火灾 Small fire	干粉，沙子，二氧化碳，水雾 Dry power, sand, carbon dioxide (CO ₂), water spray
大的火灾 Large fire	水雾 Water spray

I 灭火注意事项及防护措施 Fire precautions and protective measures

1	可燃特性 Flammable properties	锂离子电池被破坏、滥用（机械损坏或过充）、高温（>150℃）时，内部可燃电解液可能会发生泄露、点燃产生火花。燃烧的电池也可能会引燃临近的电池 Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperature (>150℃), when damaged or abused (e.g., mechanical damage or electrical overcharge). Burning cells can ignite other batteries in close proximity.
	爆炸危险 Explosion data	极端的机械滥用会导致电池破裂，投入火种会燃烧 Extreme mechanical abuse will result in rupture of the batteries. Throw into the fire will result in burning.
2	消防人员的特殊防护 Special protective equipment for firefighters	在火灾时穿上防护服和带面罩的呼吸设备 In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.
3	防火级别 NFPA	人身安全：0 可燃性：1 不稳定性：0 Health: 0 Flammability: 1 Instability: 0

6 泄露应急处理 Accidental release measures

I 人身防范 Personal precautions

1	远离事故区域 Remove personnel from area until dissipate.
2	做好个人皮肤及眼睛接触的防护 Use personal protective equipment. Avoid contact with skin and eyes.

I 环境防范 Environmental precautions

1	预防进一步的泄露或溢出 Prevent further leakage or spillage if safe to do so.
2	不允许原材料污染地下水 Do not allow material to contaminate ground water system.
3	不能将原材料扔到环境中 Do not throw out into the environment.



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I 泄露化学品的收容、清除方法及所使用的处置材料 Methods and materials for containment and cleaning up

1	用惰性吸收剂（干沙或泥土）吸收溢出的材料 Absorb spilled material with an inert absorbent (dry sand or earth) .
2	将渗漏出的固体杂质清理至容器里，再用清水冲洗渗漏的地点位置 The leaked solid is moved to a container. The leaked place is fully flushed with water.
3	合理处置被污染的水及吸收剂 Collect all contaminated wash water and absorbent for proper disposal.

7 操作处置与储存 Handling and storage

I 操作注意事项 Precautions for handling

1	技术措施：避免使用者直接接触：正常使用时没有必要 Technical measures: Prevention of user exposure; not necessary under normal use.
2	防火和防爆：正常使用时没有必要 Prevention of fire and explosion: Not necessary under normal use.
3	安全操作预防：不要损坏或除掉外壳 Precaution for safe handling: Do not damage or remove the external shell.
4	不要将电池扔到火里或暴露在高温下（60℃以上） Never throw out battery in a fire or expose to high temperatures(above 60℃).
5	不要将电池浸在水或海里 Do not soak battery in water and seawater.
6	不要暴露在强氧中 Do not expose to strong oxidizers.
7	避免受到强烈的机械冲击或扔下，不要分解或改动使其变形 Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform.
8	不要让正负极接触，仅使用企业规定的充电设备进行充电 Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charge or charge according to the conditions specified by the supplier.

I 储存注意事项 Precautions for storage

1	避免阳光直射，避免高温高湿 Avoid direct sunlight, high temperature, and high humidity.
2	储存在凉爽的环境（温度：-20~45℃，湿度：45~85%） Store in cool place (temperature: -20~45℃, humidity: 45~85%).
3	应避免的材料：导电物质、水、海水、强氧化剂和强酸 Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids.
4	包装材料：推荐使用绝缘的和不易破裂的和防水的材料 Insulated packing material and tear-proof, waterproof materials are recommended.



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8 接触控制和个人防护 Exposure controls/personal protection

I 工程控制 Engineering controls

1	采用局部排气通风或者其他工程控制去控制灰尘、雾、烟和蒸汽 Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapour.
2	在靠近工作区域处设置有易用的喷头和洗眼设备 Ensure that eyewash stations and safety showers are close to the workstation location.
3	产品被恶意使用时，危险品空运是不期望的 Airborne exposures to hazardous substances are not expected when product is used for its intended purpose.

I 个人防护 Personal protection

呼吸保护 Respiratory protection	正常情况下是不需要的；当处理漏液电池时，需要佩戴口罩 Not necessary under normal conditions. Wear safety respirator if handling an open or leaking cell.
眼睛保护 Eye protection	正常情况下是不需要的；当处理漏液电池时，需要佩戴保护眼镜或者化学护目镜 Not necessary under normal conditions. Wear safety glasses if handling an open or leaking cell.
皮肤保护 Skin and body protection	正常情况下是不需要的；当处理漏液电池时，需要佩戴橡胶或胶皮手套 Not necessary under normal conditions. Wear neoprene or nature rubber gloves if handling an open or leaking cell.
卫生措施 Hygiene Measures	在工作区域不要吃、喝或抽烟 Do not eat, drink or smoke in work areas.

9 理化特性 Physical and chemical properties

外观和气味 Appearance and odor	N/A
PH	N/A
闪点（℃） Flash point（℃）	N/A
熔点（℃） Melting point（℃）	N/A
沸点（℃） Boiling point（℃）	N/A
密度（water=1） Density（water=1）	N/A
相对密度（air=1） Relative Vapour density （air=1）	N/A
蒸汽压（KPa） Vapour pressure（KPa）	N/A



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燃烧热 (KJ/mol) Heat of combustion (KJ/mol)	N/A
自燃点火温度 (°C) Auto-ignition temperature (°C)	N/A
可溶性	不溶于水 Insoluble in water
最低可燃极限% (V/V) Lower explosive limits % (V/V)	N/A
最高可燃极限% (V/V) Upper explosive limits % (V/V)	N/A

10 稳定性和反应性 Stability and reactivity

稳定性 Stability	在正确使用和存储条件下稳定 Stable under proper operation and storage conditions.
避免接触的条件 Conditions to avoid	避免电池暴露于火中或高温环境，不要拆解、压、短接或不正确极性的安装，避免机械或电滥用 Avoid exposing the cell to fire or high temperatures environment. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
禁忌物 Incompatible materials	海水或其它导电液体 Do not immerse in seawater or other high conductivity liquids.
危害的分解产物 Hazardous decomposition products	在着火条件下可能产生有害的分解产物 When a battery is heated strongly by the surrounding fire, acrid or harmful fume may be emitted.

11 毒理学信息 Toxicological information

1	没有毒性，除非产品内部的材料暴露出来 None unless internal materials are exposed.
2	成分/组分信息在第3部分中已列出，客户使用时电池一般不会被破坏 Toxic information is available on the ingredients noted in section 3, but generally not available to intact batteries as used by customers.
3	如果气体释放或漏液，可能使皮肤或眼睛过敏，释放出来的气体也可能导致眼睛疼痛 In case of internal gas released or electrolyte spilled, electrolyte and organic solvents has small toxicity and may cause irritation of skin or eyes. Released gas may also cause irritation of skin of eyes.

12 生态学信息 Ecological information

生态毒性资料 Ecological toxicity	无可用资料 No data available.
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环境 Environmental	<p>电池单体和内部材料释放于自然环境会缓慢降解且释放有毒有害物质。电池应根据当地法规进行处置及回收</p> <p>Solid cells released into the natural environment will slowly degrade and may release harmful or toxic substances. Cell are not intended to be released into water or on land but should be disposed or recycled according to local regulations.</p>
生物体内积累 Bioaccumulation	<p>无信息</p> <p>No information.</p>

13 废弃处置 Disposal considerations

处置方法 Disposal measures	<p>处置之前应参阅国家和地方有关法规</p> <p>Dispose of in accordance with local, state and federal laws and regulations.</p>
废弃注意事项 Disposal recommendations	<p>不要乱扔电池，锂离子电池可回收利用</p> <p>Dispose of in accordance with local, state and federal laws and regulations.</p>

14 运输信息 Transport information

联合国编号 UN number	UN3481 (Contained in Equipment or Packed with Equipment)
联合国运输名称 UN shipping name	锂离子电池/组 Lithium Ion Battery
包装类别 Packing group	N/A N/A
海洋污染物 Marine pollutant	否 No
陆地运输 (ADR/RID) Land transport (ADR/RID)	Class 9
海运 (IMDG) Sea transport (IMDG)	Class 9
空运 (ICAO-TI/IATA DGR) Air transport (ICAO-TI/IATA DGR)	Class 9
国家法规 National regulations	<p>此型号电池的能量级别超过 100Wh，属于危险运输品；同时声明此型号电池已通过联合国《试验和标准手册》第 III 部分 38.3 小节相应测试要求。</p> <p>This battery type is classified as dangerous goods for transport, because the watt-hour rating of the battery exceeds 100 Wh. We also declare that this battery type meets the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.</p>

15 法规信息 Regulatory information

可适用锂离子电池运输的法律法规

Major applicable regulations for the transportation of lithium-ion cells and batteries



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1	《关于危险货物运输的建议书·规章范本》（TDG） Recommendations on The Transport of Dangerous Goods (TDG)
2	《国际海运危险货物规则》（IMDG） International Maritime Organization (IMO) International Maritime Dangerous Goods Code
3	《国际空运危险货物规则》（ICAO-TI） The International Civil Aviation Organization Technical Instructions on the Safe Transport of Dangerous Goods by Air (ICAO-TI)
4	《国际航空运输协会-危险品规则》（IATA-DGR） International Air Transport Association Dangerous Goods Regulations (IATA-DGR)
5	《中国民用航空危险品运输管理规定》CCAR276-R1 Provision of the Civil Aviation Administration of China on the Administration of Transport of Dangerous Goods by Air
6	《联合国关于危险货物运输的建议书 试验和标准手册》第三部分 38.3 条 Recommendations on The Transport of Dangerous Goods, the UN Manual of Tests and Criteria, Part III, sub-section 38.3
7	《空运危险货物包装检验安全规范》GB19433-2009 Safety Code for Inspection of Packaging of Dangerous Goods Transported by Air (GB19433-2009)
8	《锂电池航空运输规范》MH/T 1020-2013 Standard for Transport of Lithium Batteries by Air (MH/T 1020-2013)

16 其它信息 Other information

参考资料 Reference

- 【1】 国际民用航空组织（ICAO），网址：<http://www.icao.int>
The International Civil Aviation Organization (ICAO)， website: <http://www.icao.int>
- 【2】 国际航空运输协会（IATA），网址：www.iata.org
The International Air Transport Association (IATA)， website: www.iata.org
- 【3】 国际海事协会（IMO），网址：<http://www.imo.org>
International Maritime Organization (IMO)， website: <http://www.imo.org>

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