



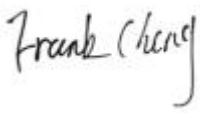


报告编号:

Report No.: 24CST120039S11

# 材料安全数据表

## Material Safety Data Sheet

委托方名称 Applicant's name	深圳市道通智能航空技术股份有限公司 Autel Robotics Co., Ltd.
委托方地址 Applicant's Address	深圳市南山区桃源街道长源社区学苑大道1001号南山智园B1栋601、701、801、901 601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China
样品名称: Name of Product:	二次锂离子电池组 Lithium Ion Polymer Rechargeable Battery
型号 Model	ABX41
标称电压 Nominal Voltage	14.76V
额定容量 Rated Capacity	9248mAh, 136.5Wh
重量 Weight	530g
尺寸 Size(L×W×T)	158.36*74.26*50.73mm
编辑: Compiler:	Sherah Xu 
审核: Checker:	Rachel Xu 
批准: Approver:	Frank Cheng 
签发日期: Issuing Date:	2025年01月03日 Jan. 03, 2025





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1. Identification of the product and supplier (产品和厂商信息)	
样品名称 Name of goods	二次锂离子电池组 Lithium Ion Polymer Rechargeable Battery
样品型号 Type/Model	ABX41
规格 Rating	14.76V, 9248mAh, 136.5Wh
委托单位 Commissioned by	深圳市道通智能航空技术股份有限公司 Autel Robotics Co., Ltd.
委托单位地址 Commissioner address	深圳市南山区桃源街道长源社区学苑大道1001号南山智园B1栋601、701、801、901 601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China
生产厂 Manufacturer's name	厦门新能达科技有限公司 Xiamen Ampack Technology Limited
生产厂地址 Manufacturer address	厦门火炬高新区同翔高新城洪塘路 600-1 号 No.600-1 Hongtang Road, Tongxiang High-tech Zone, Torch High-tech District, Xiamen City, Fujian Province, PRC. China
鉴定依据 Inspection according to	联合国《关于危险品货物运输的建议书》 UN "Recommendations on the TRANSPORT OF DANGEROUS GOODS"
联系人: Contact Person:	David Zhong
紧急联系电话 Emergency telephone call	0755-27907627
电子邮件地址: E-mail address:	david@cst-cb.com

2. Composition Information (成分/组成信息)		
化学成分 Chemical Composition	重量百分比 Weight(%)	CAS编号 CAS Number
Cobalt lithium manganese nickel oxide	5-40	182442-95-1
Ethyl propionate	15-40	105-37-3
Copper foil	10-30	7440-50-8
Aluminum foil	10-30	7429-90-5



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Graphite	7-25	7782-42-5
Ethylene Carbonate	0-15	96-49-1
Propylene Carbonate	0-15	108-32-7
Lithium Hexafluorophosphate(1-)	0-15	21324-40-3
1,3-propanesultone	0-1	1120-71-4
Separator	0-5	/

### 3. Hazards Identification (危险性概述)

爆炸危险性 Explosive risk	该物品不属于爆炸危险品 This article does not belong to the explosion dangerous goods
易燃危险性 Flammable risk	该物品不属于易燃危险品 This article does not belong to the flammable material
氧化危险性 Oxidation risk	该物品不属于氧化危险品 This article does not belong to the oxidation of dangerous goods
毒害危险性 Toxic risk	该物品不属于毒害危险品 This article does not belong to the toxic dangerous goods
放射危险性 Radioactive risk	该物品不属于放射危险品 This article does not belong to the radiation of dangerous goods
腐蚀危险性 Mordant risk	该物品不属于腐蚀危险品 This article does not belong to the corrosion of dangerous goods
其他危险性 other risk	该电池瓦时率136.5Wh, 属于可充电锂离子电池(包括可充电锂离子电池) Watt hour rate 136.5Wh, which belong to the Lithium ion batteries (including lithium ion polymer batteries)

### 4. First aid measures (急救措施)

皮肤接触: 如果电池泄漏, 电池内物质接触到皮肤, 立即脱去污染的衣着, 用大量清水冲洗15分钟 以上。仍感觉刺激或疼痛, 立刻就医。

Skin contact: If the battery is leaking and the contained material contacts the skin, remove contaminated clothes quickly and rinse the skin with plenty of water at least 15 minutes. If irritation or pain persists, get medical aid at once.

眼睛接触: 如果电池泄漏, 电池内物质接触到眼睛, 用大量清水或生理盐水冲洗15分钟以上。立刻就医。

Eyes contact: If the battery is leaking and the contained material contacts the eyes, flush the eyes with plenty of water or saline water at least 15 minutes. Get medical aid at once.

吸入: 如果电池泄漏, 迅速脱离现场至空气新鲜处。保持呼吸道通畅。如呼吸困难, 给输氧。就医。

Inhalation: If the battery is leaking, remove to fresh air immediately. Keep the respiratory tract smooth. Use oxygen if available. Get medical aid.



摄入: 如果电池泄漏, 电池内物质摄入人体, 立即用清水冲洗口腔及周边。立刻就医。

Ingestion: If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water at once. Get medical aid at once.

#### 5. Fire-fighting measures (消防措施)

危险特性: 当产品暴露在火中时, 会引起爆炸和释放分解有害物质。

Danger characteristic: Products may burst and release hazardous decomposition products when exposed to a fire situation.

有害燃烧产物: 一氧化碳、二氧化碳、金属氧化物、刺激性烟雾等。

Hazardous combustion products: Carbon monoxide, carbon dioxide, metal oxide, irritate fume, etc.

灭火方法及灭火剂: 消防人员必须佩戴过滤式防毒面具(全面罩)或隔离式呼吸器、穿全身防火防毒服, 在上风向灭火。尽可能将容器从火场移至空旷处。喷水保持火场容器冷却, 直至灭火结束。灭火剂: 雾状水、泡沫、干粉、二氧化碳、砂土。

Fire-Fighting method & media: The staff must equipped with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Sparying water on the containers in the fireplace to keep them cool until finish extinguishment. Media: hazy water, foam, powder, CO2, sandy clay.

#### 6. Accidental release measures (泄漏应急处理)

应急处理:

- 1.迅速撤离泄漏污染区人员至安全区, 并进行隔离, 严格限制出入;
- 2.提供适当的防护及通风设备;
- 3.用一个不产生粉尘的方法打扫处理泄漏物, 尽可能多地收集泄漏处理物于有标签的合适的容器中;
- 4.在安全状况下, 选用合适方式阻止或减少泄漏, 如用沙或泥土收齐围堵泄漏物;
- 5.尽可能切断泄漏源, 避免流入下水道或其它密闭空间;
- 6.如果大量泄漏, 收集回收泄漏物于合适且标示的有盖容器内, 并运往专门废物处理场所处置。

Disposal methods:

- 1.Rapid evacuation leakage pollution area personnel to safe areas, and isolation, strictly limited access;
- 2.Provide adequate protection and ventilation equipment;
- 3.Cleaning the spillage with the method does not produce dust, collect the leakage in a suitable labeled containers much as possible;
- 4.In a safe condition, choose appropriate ways to prevent or reduce leakage, for example use sand or clay ring-fence leakage, possible cut off leakage source, avoid into sewer or other enclosed spaces;
- 5.Cut off the source of leakage as much as possible, avoid entering sewers or other confined space;
- 6.If a large number of leakage, collect and recycle leakage to suitable and indicative covered container, and shipped to a special waste disposal site disposal.



废弃处理方法: 所有废弃物必须参照联合国, 国家, 地方性法规进行处置。

Waste treatment methods: All waste must be referring to the United Nations, national and local regulations for disposal.

#### 7. Handling and storage (操作处置和储存)

操作注意事项: 工作现场应保持通风。远离热源。未使用时密封容器。减少粉尘积聚和产生。避免眼睛接触, 避免呼吸粉尘。空容器会包含此化学品残留, 不要对空容器进行损坏。

Handling: Job site should keep ventilation. Keep away from heat. Sealed container when not using. Reduce dust accumulation and generation. Avoid eye contact. Avoid breathing dust. Empty containers will contain this chemical residue. Don't damage the empty container.

储存注意事项: 储存在一个低温, 干燥, 通风良好的环境。避免阳光直射。储存时远离食物和水源, 吃饭喝水前彻底清洗双手。远离禁忌物, 如强氧化剂, 强酸。远离火种、热源。配备相应品种和数量的消防器材。储区应备有泄漏应急处理设备和合适的收容材料。

Storage: Stored in a low temperature, dry, well ventilated environment. Avoid direct sunlight. Store away from food and water, wash your hands thoroughly before eat bread or drink water. Far from taboo object, such as strong oxidizer, strong acid. Keep away from fire and heating sources. Equipped with corresponding varieties and number of fire equipment. Storage areas should be equipped with leakage emergency treatment equipment and suitable for accept materials.

#### 8. Exposure controls/personal protection (接触控制/个人防护)

工程控制: 密闭操作时注意通风。确保车间蒸汽浓度在现行OSHA的要求下

Engineering controls: Ensure vapor concentration in the workshop under the requirements of existing OSHA.

呼吸系统防护: 空气中浓度超标时, 必须佩戴自吸过滤式防毒面具(半面罩)。紧急事态抢救或撤离时, 应该佩戴空气呼吸器。

Respiratory system safeguard: Exceed the standard concentration in air, must wear self-priming filter type gas mask (half mask), emergency rescue or evacuation, should wear air respirator.

眼睛防护: 如有需要, 戴化学安全防护眼镜。

Eye safeguard: If necessary, wear chemical safety protective glasses.

身体防护: 穿防静电服。

Body safeguard: Wear anti-static clothes.

手防护: 戴手套。

Hand safeguard: Wear glove.

其他防护: 工作现场严禁吸烟。避免长期反复接触电解液。

Else safeguard: No smoking at job site. Avoid prolonged and repeated contact electrolyte.

眼睛保护: 在正常情况下不需要, 如果处理打开或泄漏的电池, 戴上安全眼镜

其它防护装置 Other Protective Equipment

Have a safety shower and eye wash fountain readily available in the immediate work area. 在直接工作区内有一个安全的淋浴和洗眼喷泉。



## 9. Physical and chemical properties (物理和化学特性)

形态: 矩形

Form: Rectangle shape

气味: 无味

Odour: Monotony

气味阈值: 不适用。

Odor Threshold: Not applicable.

酸碱度: 不适用。

pH: Not applicable.

熔点/冰点: 不适用。

Melting Point/freezing point: Not applicable.

起始沸点和沸腾范围: 不适用。

Initial boiling point and Boiling range: Not applicable.

闪点: 不适用。

Flash Point: Not applicable.

蒸发速率: 不适用。

Evaporation rate: Not applicable.

易燃性 (固态, 气态): 不适用。

Flammability (solid, gaseous): Not applicable

上下易燃极限或爆炸极限: 不适用。

Upper/lower flammability or explosive limits: Not applicable.

蒸汽压力: 不适用。

Vapor Pressure: Not applicable.

蒸汽密度: 不适用。

Vapor Density: Not applicable.

相对密度: 不适用。

Relative density: Not applicable.

溶解性 (水溶性): 不适用。

Solubility (water): Not applicable.

溶解性 (其他): 不适用。

Solubility (other): Not applicable.

n-辛醇/水分配系数: 不适用。

n-octanol/water partition coefficient: Not applicable.

自燃温度: 不适用。

Auto-ignition temperature: Not applicable.

分解温度: 不适用。

Decomposition temperature: Not applicable.

## 10. Stability and reactivity (稳定性和反应活性)

稳定性: 产品在第7节所述的条件下稳定。

Stability: Product is stable under conditions described in Section

应避免的条件:



Conditions to avoid: Do not subject Lithium Ion Battery to mechanical shock.

不要将锂离子电池做机械冲击。

Vibration encountered during transportation does not cause leakage, fire or explosion.

运输过程中遇到的振动不会引起泄漏、火灾或爆炸。

Do not disassemble, crush, short or install with incorrect polarity.

不要拆卸，粉碎，短路或安装不正确的极性。

Avoid mechanical or electrical abuse.

避免机械或电气滥用。

应避免的材料：氧化剂，酸，碱。

Materials to avoid: Oxidizing agents, acid, base.

危险分解物：如果被烧毁或暴露在火中，这种物质可能会释放有毒的烟雾

Hazardous Decomposition Products: This material may release toxic fumes if burned or exposed to fire

聚合危害：不适用

Hazardous Polymerization: N/A.

如果发生泄露，避免与强氧化剂，无机酸，强碱，卤代烃接触。

If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

#### 11. Toxicological information (毒理性资料)

标志及症状：无，除非电池破裂。

Signs & symptoms: None, unless battery ruptures.

内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤的刺激性。

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

吸入：对肺有刺激性。

Inhalation: Lung irritant.

皮肤接触：对皮肤刺激性。

Skin contact: Skin irritant

眼睛接触：对眼睛有刺激性。

Eye contact: Eye irritant

食入：吞下中毒。

Ingestion: Poisoning if swallowed

下列情况下健康状况会恶化：万一发生与电池内部材料接触的事故，轻微或严重的刺激，都可能使皮肤出现干燥和灼烧的感觉，并且损坏靶器官（肝脏，肾脏）的神经。

Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

#### 12. Ecological information (生态学资料)

对哺乳动物的影响：目前未知。

Mammalian effects: None known at present.

生态毒性：目前未知。





Eco-toxicity: None known at present.

生物体内积累: 不适用。

Bioaccumulation potential: Not Applicable.

环境危害: 目前没有已知的环境危害。

Environmental fate: None known environmental hazards at present.

### 13. Disposal consideration (废弃处置)

废弃处置方法 Waste Treatment

建议遵照国家和地方法规处置或再利用。

Recycle or dispose of in accordance with government, state & local regulations.

包装处理建议 Packaging disposal recommendation

废弃处理必须根据当地法规

Disposal must be made according to official regulations

### 14. Transport information (运输信息)

运输标签: 锂电池标签

Label for conveyance: Lithium Battery Label

UN编号: 3480, 3481, 3171 UN Number: 3480 ,3481,3171

包装等级: 不适用

Packing Group: N/A. EmS编号: F-A , S-I EmS No: F-A, S-I

海洋污染物: 无 Marine pollutant: No

正确的装运名称: 1) 锂离子电池; 2) 设备包装在一起的锂离子电池; 3) 内置在设备中的锂离子电池

Proper Shipping name: 1) Lithium ion batteries; 2) Lithium ion batteries packed with equipment ; 3) Lithium ion batteries contained in equipment

危险分类: 货物应遵守IATA第66版DGR手册包装说明965第IB节或者966-967第II节规定(2025年版), 和特殊规定188海运危险货物规则(Inc Amdt. 41-22), 包括通过UN38.3 测试手册要求。

Hazard Classification: The goods shall be complied with the requirements of Section IB of Packing Instructions 965 or Section II of Packing Instructions 966~967 of 66th DGR Manual of IATA (2025 Edition) and special provision188 of IMDG CODE (Inc Amdt. 41-22), including the passing of the UN38.3 test.

在其场地内外进行运输或传送时, 用户需要了解或需要遵守的特殊预防措施: 无其它信息。

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises: No further information.

### 15. Regulation information (法规信息)

法律信息

Law information

《危险物品规则》

《Dangerous Goods Regulations》

《对危险货物运输的有关规定的建议》

《Recommendations on the Transport of Dangerous Goods Model Regulations》





《国际海运危险货物规则》  
《International Maritime Dangerous Goods》  
《危险品安全运输技术指令》  
《Technical Instructions for the Safe Transport of Dangerous Goods》  
《危险货物分类和品名编号》  
《Classification and code of dangerous goods》  
《职业安全卫生法》  
《Occupational Safety and Health Act》(OSHA)  
《有毒物质控制法》  
《Toxic Substance Control Act》(TSCA)  
《消费产品安全法》  
《Consumer Product Safety Act》(CPSA)  
《联邦环境污染控制法》  
《Federal Environmental Pollution Control Act》(FEPCA)  
《石油污染法案》  
《The Oil Pollution Act》(OPA)  
《超级基金修正案和再授权法案III (302/311/312/313)》  
《Superfund Amendments and Reauthorization Act TitleIII (302/311/312/313)》(SARA)  
《资源保护及恢复法案》  
《Resource Conservation and Recovery Act》(RCRA)  
《安全饮用水法》  
《Safety Drinking Water Act》(CWA)  
《加州65提案》  
《California Proposition 65》  
《美国联邦法规》  
《Code of Federal Regulations》(CFR)

根据所有联邦、州和地方法律。

In accordance with all Federal, State and local laws.

#### 16. Other information (其他信息)

本文件仅对由委托方深圳市道通智能航空技术股份有限公司提供的,并由厦门新能达科技有限公司生产的电池(ABX41)有效。该电池的成分信息由委托方提供并承诺其完整性和准确性。用户应仔细阅读此文件,并按照正确的方法使用电池,如因电池使用不当造成的损害或损失,深圳中科为检测有限公司不承担任何责任。

This file is only effective to the batteries (ABX41) provided by Autel Robotics Co., Ltd. which manufactured by Xiamen Ampack Technology Limited .The commissioner provides the composition information of batteries, and promises its integrity and accuracy. Users should read this file carefully, and use the batteries in correct method. Shenzhen CST Testing Co., Ltd. doesn't assume responsibility for any damage or loss because of misuse of batteries.

\*\*\*结束 END\*\*\*