



MATERIAL SAFETY DATA SHEET
材料安全数据表

Section 1 - Chemical and Company Identification 第一部分-化学品及企业标识	
Product 产品	Rechargeable Li-ion Battery 二次锂离子电池组
Type/Model 型号	C1555A8 设备型号: NVW-MAXV2CAM
Parameter 参数	3.65V, 9600mAh, 35.04Wh
Usage 用途	MaxRanger4K™ Solar Wireless Security Camera 4K 长 WIFI 太阳能电池摄像机
Company 公司	Swann Communications
Address 地址	Units 5B, 706 Lorimer Street, Port Melbourne, Victoria 3207, Australia.
Tel./应急电话	+61 (0)3 8412 4600
E-mail 电子邮箱	tech@swann.com
Issue Date 签发日期	2025-01-01

Section 2 - Hazards Identification 第二部分-危险性概述
Hazards Identification: 危险性描述 Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful. 正常使用没有危险, 不能拆解、打开或分解电池, 里面的材料或成分是有危害的。
Primary Route (s) of Exposure: 接触途径 inhalation, ingestion, Skin contact and Eye contact. 吸入、食入、皮肤接触、眼睛接触。
Potential Health Effects: 潜在健康影响 Inhalation: Vapors or mists from a ruptured battery may cause respiratory irritation. 吸入: 破裂的电池散发出来的气雾会引起呼吸道刺激。 Ingestion: The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. 食入: 电池的组成成分或原料可以导致嘴, 食道和胃肠道的严重化学烧伤。 Skin: Skin contact with contents of an open battery can cause severe irritation or burns to the skin. 皮肤: 皮肤接触到电池的內部化学材料可能会导致严重的刺激或烧伤皮肤。 Eye: Eye contact with contents of an open battery can cause severe irritation or burns to the eye.



眼睛：眼睛接触到电池的內部化学材料可能会导致严重的刺激或烧伤眼睛。

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT

第3节—成分信息

Ingredient 成分	Molecular formula 分子式	CAS No. CAS 号	Weigh 含量
Lithium nickel cobalt manganese oxide /镍钴锰酸锂	$\text{LiNi}_x\text{Co}_y\text{Mn}_{1-x-y}\text{O}_2$	346417-97-8	36-40%
Graphite /石墨	C	7782-42-5	20-26%
Polyvinylidene fluoride (PVdF) / 聚偏二氟乙烯	$(\text{C}_2\text{H}_2\text{F}_2)_n$	24937-79-9	≤2%
Ethylene carbonate /碳酸乙烯酯	$\text{C}_3\text{H}_4\text{O}_3$	96-49-1	15-20%
Lithium hexafluorophosphate /六氟磷酸锂	LiPF_6	21324-40-3	1-4%
Copper/ 铜	Cu	7440-50-8	10-15%

Section 4- First Aid Measure

第四部分-急救措施

Eye Exposure 眼睛接触:

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

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

Skin Exposure 皮肤接触:

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

如果打开的电池的內部电池材料接触到皮肤，立即用大量的水或肥皂冲洗。

Inhalation Exposure 吸入:

Remove source of contamination or move victim to fresh air. Obtain medical advice.

移除污染源或者将受害者移至新鲜空气处。寻求医生建议。

Ingestion Exposure 吞咽:

Please rinse mouth thoroughly with water, induce vomiting under the guidance of professional personage. Please seek medical treatment in time.

立即用清水漱口，在专业人士的指导下催吐，速就医。

Section 5- Fire Fighting Measures

第五部分-消防措施

Danger characteristic 危险特性:

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

暴露在过热的环境中会导致液体电解质的释放。

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

当暴露在火灾环境中时，电池可能会爆裂并释放出危险的分解产物。

Hazardous combustion products 有害危险产物:

Corrosive and toxic gas may be emitted during fire.

着火期间可能会排放腐蚀性和有毒气体。



Fire-Fighting method 灭火措施:

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

员工必须配备过滤器面罩或隔离式呼吸器。

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

工作人员必须穿能在逆风方向防火的衣服。

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

尽快将容器移到空地上。

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

把水喷在壁炉里的容器上, 使其降温, 直到熄灭。

Fire-Fighting media 灭火介质:

Plenty of water, dry chemical powder or carbon dioxide.

大量的水, 干粉或二氧化碳。

Section 6- Accidental Release Measure

第六部分-泄漏应急处理

Emergency treatment 紧急处理:

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

如果电池材料被释放, 请将人员从该区域撤离, 直到电池冷却和烟雾消散。

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

提供最大的通风以清除有害气体和避免皮肤和眼睛接触或吸入蒸汽。

Remove spilled liquid with absorbent and incinerate waste.

用吸收剂除去溢出的液体并焚烧废物。

Section 7- Handling and Storage

第七部分-操作处置与储存

Handling 处理:

1. Do not allow battery terminates to contact each other, or contact with other metals.

不要让电池端子相互接触或与其他金属接触。

2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.

不要将电芯或电池放入火中或加热。不要直接焊接电池。不要将电芯或电池放在靠近火源或加热器等地方。

3. Do not expose the battery to excessive physical shock or vibration.

不要让电池受到过度的物理冲击或振动。

4. Do not immerse, throw, and wet a battery in water.

不要将电池浸入水中、投掷或弄湿。

5. Short-circuiting should be avoided. Short circuit will reduce the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short- circuited battery can cause skin burn.

应避免短路。短路会降低蓄电池的寿命, 并可能导致周围材料着火。与短路电池的物理接触会导致皮肤灼伤。



6. The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.

不应打开、销毁或焚烧电池，因为电池可能泄漏或破裂，并将密封容器中的成分释放到环境中。

7. Place the cell beyond the child packing and container.

将电池放置在儿童触及不到的地方。

8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.

不要将电池直接连接到汽车的电源插座或香烟插座上。

9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.

请务必使用指定的蓄电池充电器，并正确遵循充电说明。

10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.

不要将新旧电池混合在一起使用，也不要与镍镉电池、干电池或其他制造商的电池或产品混合使用。

Storage 储存:

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.

电池应与其他材料分开，并存放在不燃、通风良好、有洒水装置保护的结构中，墙壁和电池堆之间应有足够的间隙。

2. Keep the sample in the cool, dry and well-ventilated place (temperature: -20~30 °C, humidity: 45~85%). Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid.

将样品置于阴凉、干燥、通风良好的地方（温度-20~30℃，湿度：45~85%）。不要长时间暴露在阳光直射下。远离火源和热源。不要用氧化剂和酸保存样品。

3. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.

配备相应种类和数量的灭火器材。储存场所应配备适当的掩蔽材料，以便进行泄漏处理。

4. For rechargeable battery, charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.

对于可充电电池，即使不使用电池，也应每 6 个月将电池充电至制造商规定的电量。

Section 8 - Exposure Controls/Personal Protection

第八部分-接触控制和个体防护

Engineering Control 工程控制:

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

Respiratory Protection 呼吸保护:

Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

在正常使用条件下不需要。如果环境内气体密度超过空气中的密度，请佩戴自给式呼吸过滤器。在紧急救援或疏散的情况下，佩戴呼吸器。

Eyes Protection 眼睛保护:

Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured



battery.

在正常使用条件下不需要。如果处理泄漏或破裂的电池，请戴上防护眼镜。

Skin and Body Protection 皮肤和身体保护:

Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.

在正常使用条件下不需要。在处理泄漏或破裂的电池时，穿上防火防毒服。

Hands Protection 手部保护:

Not necessary under conditions of normal use. Wear chemical resistant rubber glove.

在正常使用条件下不需要。耐磨耐化学腐蚀橡胶手套。

Section 9- Physical and Chemical Properties

第九部分-理化特性

Appearance 外观:	Blue 蓝色
Physical state 状态:	Solid 固体
Form 形状:	Approximate Cylinder 近圆柱体
Odor 气味:	Odorless 无味
Solubility 溶解度:	Insoluble in water 不溶于水

Section 10 - Stability and Reactivity

第十部分-稳定性和反应性

Stability 稳定性:

Stable under normal temperature and pressure.

常温常压下稳定。

Distribution of Ban 禁配物:

Explosives, inflammables, strong oxidants and corrosives.

爆炸品、易燃物、强氧化剂和腐蚀剂。

Conditions to Avoid 应避免的条件:

Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge.

火源、热源、拆卸、外部短路、压碎、变形、100°C 以上高温、阳光直射、高湿度、浸水或过充。

Hazardous Polymerization 危险聚合:

Will not occur.

不会发生。

Hazardous Decomposition Products 有害分解产物:

Metal oxides, carboxyl compound such as CO, CO₂, etc.

金属氧化物，碳化合物例如一氧化碳、二氧化碳，等等。

Section 11 - Toxicological Information

第十一部分-毒理学信息

Acute Toxicity 急性毒性:

No information is available.

没有可用的信息。



Sub-acute and Chronic Toxicity 亚急性和慢性毒性: No information is available. 没有可用的信息。
Irritation Data 刺激性数据: The internal battery materials may cause irritation to eyes and skin. 电池内部材料可能会对眼睛和皮肤造成刺激。
Sensitization 致敏作用: The liquid in the battery may cause sensitization to some person. 电池中的液体可能会对某些人造成敏化。
Mutagenicity 致突变性: No information is available. 没有可用的信息。
Carcinogenicity 致癌性: Cobalt and Cobalt compounds are considered to be possible human carcinogen(s). 钴及其钴的化合物有致癌的风险。
Others 其他: Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents. 由于该电池中的材料密封在罐体中, 当按照指示使用电池时, 接触电池组件的可能性可以忽略不计。但是, 电池的技术或电气滥用可能会导致蓄电池内容物的释放。

Section 12-Ecological Information

第十二部分-生态学信息

Eco-toxicity 生态毒性: No information is available. 没有可用的信息。
Biodegradable 生物降解性: No information is available. 没有可用的信息。
Mobility in soil 土壤流动性: No information is available. 没有可用的信息。
Bioconcentration or biological accumulation 生物浓缩或生物积累: No information is available. 没有可用的信息。
Other harmful effects 其他有害影响: Don't abandon the battery into environment, may cause water or soil pollution. 不要将电池扔进环境中, 可能造成水或土壤污染。

Section 13 - Disposal Considerations



第十三部分-废弃处置

Appropriate Method of Substance 物质处理方法:

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

为了防止短路, 在处理前应将蓄电池完全放电。

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

电池含有可回收材料, 建议回收利用。

Refer to National or Local regulations before handling.

操作前请参阅国家或地方法规。

Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

电池的处理应由获得国家或地方法规的许可的具有危险废物处理和危险废物运输的专业处理公司进行。

Section 14 - Transport Information

第十四部分-运输信息

General packaging requirement 一般包装要求:

1. The cells or batteries must be protected so as to prevent short circuits.

电芯或电池必须加以保护, 以防止短路。

2. The cells or batteries or equipment must be packed in suitable strong outer packaging.

电芯或电池或设备必须包装在合适的坚固的外包装中。

3. If batteries contained in equipment, equipment must be secured against movement within the outer packaging and be packed so as to prevent accidental activation.

如果电池包含在设备中, 设备必须在外包装内固定, 防止移动, 并进行包装, 以防止意外激活。

No. 序号	UN numbers & P.S.N., if applicable 联合国编号及运输专用名, 如适用	No. 序号	UN numbers & P.S.N., if applicable 联合国编号及运输专用名, 如适用
(01)	UN 3480, LITHIUM ION BATTERIES UN 3480, 锂离子电池组	(02)	UN 3481, LITHIUM ION BATTERIES PACKED WITH EQUIPMENT UN 3481, 锂离子电池组同设备包装在一起
(03)	UN 3481, LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT UN 3481, 锂离子电池安装在设备中	(04)	UN 3171, 电池驱动的车辆 UN 3171, BATTERY-POWERED VEHICLE
No. 序号	Hazard Class 危险等级	Packing Group 包装类别	Packaging requirement 包装要求
☒	Air transportation, according to IATA-DGR 66 th Edition (Effective 1 January-31 December 2025) 空运, 依据 IATA-DGR 第 66 版 (2025 年 1 月 1 日至 12 月 31 日生效)		
(01)	Class 9	NIL	PACKING INSTRUCTION 965, section IB 包装说明 965 IB 节
(02)	Not restricted	NIL	PACKING INSTRUCTION 966, section II 包装说明 966 II 节
(03)	Not restricted	NIL	PACKING INSTRUCTION 967, section II 包装说明 967 II 节
☒	Maritime transportation, according to IMO IMDG Code (Amend 41-2022) 海运, 依据 IMO IMDG Code (Amend 41-2022)		



(01)	Not restricted	NIL	Special provision 188, EmS No.: F-A,S-I 特殊条款 188, 应急处理代码: F-A,S-I
(02)	Not restricted	NIL	Special provision 188, EmS No.: F-A,S-I 特殊条款 188, 应急处理代码: F-A,S-I
(03)	Not restricted	NIL	Special provision 188, EmS No.: F-A,S-I 特殊条款 188, 应急处理代码: F-A,S-I
☒	Road transportation, according to ADR-2025 公路运输, 依据 ADR-2025		
(01)	Not restricted	NIL	Special provision 188 特殊条款 188
(02)	Not restricted	NIL	Special provision 188 特殊条款 188
(03)	Not restricted	NIL	Special provision 188 特殊条款 188
☒	Railway transportation, according to RID-2025 铁路运输, 依据 RID-2025		
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Remark 备注	In "Hazard Class", "Class 9" means "Class 9 dangerous goods", and "Not restricted" means that they are not restricted “危险等级”中“Class 9”表示“第九类危险货物”, “Not restricted”表示不受限制 In "Packing Group", "II" means "Packing Group II" and "NIL" means "No requirement" “包装组”中“II”表示“二级包装”, “NIL”表示“无要求”		

Section 15 - Regulatory Information

第 15 节—监管信息

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

Section 16 - Additional Information

第 16 节—附加信息

Other Information 其他信息:

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 damage of any third party or for lost profits or any special,



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Guangdong Pow-Tech New Power Co., Ltd.

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