Report No.: TSZ21120413-P01
报告编号

MSDS REPORT
MSDS 报告

Client Name 委托单位	:	XinXiang BOYAN Power Supply Co.,Ltd 新乡市博研电源有限公司
Address 地址	:	No.3 building, xinchao grand view park, huixian city, henan province. 河南省辉县市新潮大观园 3 号楼
Product Name 产品名称	:	Ni-MH battery 镍氢电池
Date 日期	:	Jan. 04, 2022 2022 年 01 月 04 日

Shenzhen Tiansu Calibration and Testing Co.,Ltd

深圳天溯计量检测股份有限公司

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MATERIAL SAFETY DATA SHEET
材料安全数据清单

1. Chemical Product and Company Identification产品及申请公司信息

Sample name: 样品名称	Ni-MH battery 镍氢电池
Sample model: 样品型号	详见附录 1
Rating: 参数	Nominal Voltage 标称电压: 1.2V Rated Capacity 额定容量: 100mAh Weight 重量: 6.2g
Manufacturer: 制造商	XinXiang BOYAN Power Supply Co.,Ltd 新乡市博研电源有限公司
Address: 制造商地址	No.3 building, xinchao grand view park, huixian city, henan province. 河南省辉县市新潮大观园 3 号楼
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SHENZHEN TIANSU CALIBRATION AND TESTING CO.,LTD. 深圳天溯计量检测股份有限公司 报告专用章 Report Seal (01-03)

Appendix1
附录 1

NI-MH: AA100mAh AA150mAh AA200mAh AA250mAh AA300mAh AA350mAh AA400mAh AA450mAh AA500mAh AA600mAh AA700mAh AA800mAh AA900mAh AA1000mAh AA1100mAh AA1200mAh AA1300mAh AA1400mAh AA1500mAh AA1600mAh AA1700mAh AA1800mAh AA1900mAh AA2000mAh AA2100mAh AA2200mAh AA2300mAh AA2400mAh AA2500mAh AA2600mAh
NI-MH: AAA100mAh AAA150mAh AAA200mAh AAA250mAh AAA300mAh AAA350mAh AAA400mAh AAA450mAh AAA500mAh AAA600mAh AAA700mAh AAA800mAh AAA900mAh AAA1000mAh
NI-MH: 1/3AAA80mAh 1/3AAA100mAh 1/3AAA120mAh 1/3AAA150mAh 1/3AAA180mAh 1/3AAA200mAh
NI-MH: 2/3AA100mAh 2/3AA150mAh 2/3AA200mAh 2/3AA250mAh 2/3AA300mAh 2/3AA350mAh 2/3AA400mAh 2/3AA450mAh 2/3AA500mAh 2/3AA550mAh 2/3AA600mAh
NI-MH:2/3AAA100mAh 2/3AAA150mAh 2/3AAA200mAh 2/3AAA250mAh 2/3AAA300mAh 2/3AAA350mAH 2/3AAA400mAH 2/3AAA450mAh 2/3AAA500mAh 2/3AAA550mAh 2/3AAA600mAh
NI-MH:SC600mAh SC700mAh SC800mAh SC900mAh SC1000mAh SC1100mAh SC1200mAh SC1300mAh SC1400mAh SC1500mAh SC1600mAh SC1700mAh SC1800mAh SC1900mAh SC2000mAh SC2100mAh SC2200mAh SC2300mAh SC2400mAH SC2500mAh SC2600mAh SC2700mAh SC2800mAh SC2900mAh SC3000mAh
NI-MH:C1500mAh C1800mAh C2000mAh C2500mAh C3000mAh C3500mAh C4000mAh
NI-MH: D3000mAh D3500mAh D4000mAh D4500mAh D5000mAh D6000mAh D7000mAh D8000mAh
NI-MH: 40 mAh 80 mAh

2. Hazards Summarizing 危险概述

Routes of entry进入途径:

1. Inhalation- During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within the battery case. However, should the batteries be exposed to extreme heat or pressures causing a breach in the battery cell case, exposure to the constituents may occur. skin and eyes will be heat injured when contacted with the substances contained in the battery, because it is strongly corrosive. Take it by accident can cause chemical burn of the alimentary canal, anabrosis and bleeding of the mucous membrane, and shock. Nickel compounds are carcinogenic. Cobalt compounds could cause erythremia, cardiomyopathy and goiter.
   吸入-在正常情况下,由于密封,是不太可能接触到电池内的有害物质。然而,电池若是暴露在极热的情况下或挤压,导致电池破损成分泄漏.电池放出的化学物质会将皮肤和眼睛受伤,因为它是具有强烈腐蚀性。化学物质会灼伤消化道的黏膜糜烂出血和休克。镍化合物致癌。钴化合物可能会导致红细胞增多、心肌病和甲状腺肿大。
2. Ingestion- If the battery case is breached in the digestive tract, the electrolyte may cause localized burns.
   摄入-如果电池被破坏的情况,存在于消化道中,电解液可能引起局部烧伤。
3. Skin Absorption:-No evidence of adverse effects from available data.
   皮肤吸收-没有不利影响的证据表明和可用数据。
4. Skin Contact:-Exposure to the electrolyte contained inside the battery may result in chemical burns. Exposure to nickel may cause dermatitis in some sensitive individuals.
   皮肤接触-电池内的电解液暴露在外,含有可能导致烧伤的化学物质。接触镍在某些敏感个体可能会引起皮炎。
5. Eye Contact- Exposure to the electrolyte contained inside the battery may result in severe irritation and chemical burns.
   眼睛接触-电池内的电解液暴露在外,含有可能导致严重的刺激和化学烧伤的物质。

Health harm 健康损害:

1. Carcinogenicity-Nickel has been identified by the National Toxicology Program (NTP) as reasonably anticipated to be a carcinogen. Cobalt has been identified by IARC as a 2B carcinogen.
   致癌性-镍已被国家毒理学规划处(NTP)基本确认是致癌物。钴被研究证实为 2B 致癌物。
2. Other Effects of Repeated (Chronic) Exposure- Chronic overexposure to nickel may result in cancer; dermal contact may result in dermatitis in sensitive individuals.
   反复接触其他的影响(慢性)-长期过度暴露的镍可能导致癌症,敏感体质人群皮肤接触

可能导致皮炎。

3. Medical Conditions Aggravated by Overexposure- A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure in unlikely to aggravate existing medical conditions.
过度暴露加重医疗状况-现有的毒理学资料及对材料的物理和化学性质的知识表明，过度暴露有可能加剧现有的医疗状况。

3. Composition/Information on Ingredients原料成分信息

Chemical Name 化学名称	Percent of Content 含量百分比	CAS No. CAS 编号
Nickel Hydroxide 氢氧化镍	12054-48-7	46.5-47.5
Nickel Power 镍粉	7440-02-0	22.0-23.0
Cobalt 钴	7440-48-4	4.0-4.5
Manganese 锰	9439-96-5	5.0-5.5
iron 铁	7439-89-6	20-25
Aluminum 铝	7439-89-6	3.5-4.0
Polypropylene聚丙烯	9003-07-0	5.8-6.8
Potassium氢氧化钾	1310-58-3	2.2-2.5
Water 水	14341-42-2	9.0-10.0
Nickel Hydroxide 氢氧化镍	12054-48-7	46.5-47.5

4. First Aid Measures 急救措施

Swallowing: Do not induce vomiting. Seek medical attention immediately.
吞咽:不要诱导呕吐,立即就医。
Skin: If the internal cell materials of an opened battery cell comes into contact with the skin, immediately flush with water for at least 15 minutes.
皮肤:如果打开电池，内部材料接触皮肤,立即用水至少冲洗 15 分钟。
Inhalation: If potential for exposure to fumes or dusts occurs, remove immediately to fresh air and seek medical attention.
吸入:如果接触气体或粉尘时,立即呼吸新鲜空气和就医。
Eyes: If the contents from an opened battery comes into contact with the eyes, immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.
眼睛:如果打开电池,内部材料接触眼睛,立即用水冲洗眼睛至少持续 15 分钟和就医。

5. Fire Fighting Measures 消防措施

Extinguishing Media: Any class of extinguishing medium may be used on the batteries or their packing material.
灭火剂的灭火媒体:任何可以使用的电池或包装材料。
Fire Fighting Procedures: Exposure to temperatures of above 100℃ can cause evaporation of the liquid content of the alkality electrolyte resulting in the rupture of the cell. Potential for exposure to metal alloy fumes during fire; use self-contained breathing apparatus.
消防程序:电池暴露在 100℃以上的高温会导致导致的破裂,从而碱性电解液的蒸发。可能在火灾烟雾中接触到金属合金;需使用自给式呼吸器。

6. Accidental Release Measures 偶然的释放措施

Spill and leaks are unlikely because cells are contained in a hermetically-sealed case. If the battery case is breached, do protective clothing that is impervious to caustic materials and absorb or pack spill residues in inert material. Dispose of as a hazardous waste in accordance with applicable state and federal regulations. Resultant spill residues may be characterized as caustic. See Section VII for response to fires or explosions. If there is a great deal leaked, collect and transport them to the professional waste treatment, and wash the ground with plenty of water which should be flushed to the waste water system.
电池在一个密封的情况，不太可能存在泄漏。如果违反了电池的情况下,使用防护服,不接触腐蚀性材料并使用惰性材料吸收泄漏残留物。作为危险废物处置需按照适用的州和联邦法规。合成泄漏残留可能具有腐蚀性。参见第七节应对火灾或者爆炸。如果有大量泄露,需专业的机构收集废物和运输,应该用大量的水清洗地面,冲洗废水处理系统。

7. Handling and Storage 操作和贮存

Storage: Store in a cool place, but prevent condensation on cell or battery terminals. Elevated temperatures may result in reduced battery life. Optimum storage temperatures are between -20°C and35°C. Optimum storage humidity are 65±20%.
储存:储存在阴凉的地方,防止电芯或电池的电极冷凝水珠。温度升高可能导致电池寿命减少。最佳储存温度在-20℃到 35℃之间。最佳存储湿度 65±20%。
Mechanical Containment: If there are special encapsulation or sealing requirements, consult your McNair company. representative about possible cell hazard precautions or limitations.
机械密封：如果有特殊的封装和密封要求，请咨询您的 McNair 公司代表，有关可能的电芯危害注意事项或限制。
Handling: Accidental short circuit will bring high temperature elevation to the battery as

well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture of the battery cell case. Batteries packaged in bulk containers should not be shaken. Metal covered tables or belts used for assembly of batteries into devices can be the source of short circuits; apply insulating material to assembly work surface. If soldering or welding to the case of the battery is required, consult your McNair company. representative for proper precautions to prevent seal damage or external short circuit.

处理:意外短路将给电池带来高温以及缩短电池寿命。一定要避免接触长时间短路甚至破裂的电池，会烧伤皮肤。电池包装散装容器不可以晃动。电池组件用的金属极耳或转接线可作为短路的来源，将绝缘材料应用于装配工作台面。如果焊接或焊接到电池外壳是必需的，请咨询您的 McNair 公司代表，防止密封损坏或外部短路的适当预防措施。

Charging: This battery is designed for recharging. A loss of voltage and capacity of batteries due to self-discharge during prolonged storage is unavoidable. Charge battery before use. Observe the specified charge rate since higher rates can cause a rise in internal gas pressure that may result in damaging heat generation or cell rupture and/or venting.

充电:这是设计为可充电的电池。由于电池长期储存，电压和容量自放电损失在是不可避免的。充电电池在使用前。遵守指定的充电率由于更高的利率可以导致内部气体压力上升可能导致破坏热代或细胞破裂和/或排气。

Labeling: If normal label warnings are not visible, it is important to provide a device label stating: CAUTION: Do not dispose in fire, mix with other battery types, charge above specified rate, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents.

标签:如果正常标签警告不明显的,提供一个设备标签声明是很重要的：警告：不要在火上操作，与其他类型的电池混合,充电超过标准比率，连接不当或短路，这可能导致过热、爆炸或泄漏电池内物质。

Soldering/welding: If soldering or welding to the case of the battery is required, consult your McNair company. representative for proper precautions to prevent seal damage or external short circuit.

钎焊/焊接:如果必须钎焊或焊接的电池，请咨询你的麦克奈尔公司代表适当的预防措施防止密封损坏或外部短路。

8. Exposure Controls/Personal Protection 暴露控制/自我防护

Threshold Limit Values: See Section III.
Ventilation Requirements: Not required under normal use.
Respiratory Protection: Not required under normal use.
Eye Protection: Not required under normal use.
Gloves: Not required under normal use.
阈值限制:参见第三节。

通风要求:正常使用不需要。
呼吸防护:正常使用不需要。
眼睛保护:正常使用不需要。
手套:正常使用不需要。

9. Physical and Chemical Properties 物理和化学特性

(a)Appearance 外观	Solid 固体
(b)Odor 气味	Monotony 无味
(c)Odor threshold 气味阈值	Not available. 不适用。
(d)pH PH 值	Not available. 不适用。
(e)Melting point/freezing point 熔点/凝固点	Not available. 不适用。
(f)Initial boiling point and boiling range 初始沸点和沸腾范围	Not available. 不适用。
(g)Flash poin 闪点	Not available. 不适用。
(h)Evaporation rate 蒸发速率	Not available. 不适用。
(i)Flammability 易燃性（固态、气态）	Not available. 不适用。
(j)Upper/lower flammability or explosive limits 上下易燃极限或爆炸极限	Not available. 不适用。
(k)Vapor pressure 蒸汽压力	Not available. 不适用。
(l)Vapor density 蒸汽密度	Not available. 不适用。
(m)Relative density 相对密度	Not available. 不适用。
(n)Solubility(ies) 可溶性	Not available. 不适用。
(o)Partition coefficient: n-octanol/water 分配系数：n-辛醇/水	Not available. 不适用。
(p)Auto-ignition temperature 自燃温度	Not available. 不适用。
(q)Decomposition temperature 自动点火温度	Not available. 不适用。
(r)Viscosity 分解温度	Not available. 不适用。

10. Stability and Reactivity 稳定性和反应活性

The batteries are stable under normal operating conditions.
电池在正常操作条件下是稳定的。
Hazardous polymerization will not occur.
危险的聚合作用不会发生。
Hazardous decomposition products: oxides of nickel and cobalt.
避免的条件:热度、明火、火花和湿度。
Potential incompatibilities (i.e., materials to avoid contact with): The battery

cells are encased in a non-reactive container; however, if the container is breached, avoid contact of internal battery components with acids, aldehydes, and carbamate compounds.
潜在的不兼容(例如,材料,避免接触):电池包裹在一个无电抗容器;然而,如果违反了容器,避免与内部电池组件酸、醛、氨基甲酸酯化合物接触。

11. Toxicological Information有害物质信息

During normal use, hazardous materials are fully contained inside the battery cell. However, If the battery case is breached, hazardous materials may be released. The following information is provided for the user's information only.
在正常使用,有害物质完全包含在电池内。然而,如果电池的外壳被破坏,有害物质可能被释放。以下信息仅提供给用户参考。
Acute toxicity: Cobalt oxide:LD50：1700 mg/kg (Swallowing of big mouse)
急性毒性:钴氧化物:LD50:1700毫克/公斤(大老鼠吞咽做实验)
Nickel hydroxide: LD50：1500 mg/kg (Swallowing of big mouse)
氢氧化镍:LD50:1500毫克/公斤(大老鼠吞咽做实验)

12. Ecological Information生态信息

Other hazardous effect:-During normal use, It is not hazardous. If the battery case is breached, the substances inside the battery is hazardous to the environment. There should especially pay attention to the pollution to the waters.
其它有害作用-在正常使用期间,它并不危险。如果电池外壳遭破坏,电池内部的物质对环境是有害的。应该尤其注意污染的水域。

13. Recycling and Disposal回收和处理

1. Cell encourages battery recycling. Our Nickel Metal Hydride batteries are recyclable through the professional waste disposal company. Nickel Metal Hydride batteries must be handled in accordance with all applicable state and federal laws and regulations.
   鼓励电池回收。我们的镍金属氢化物电池通过专业废物处理公司是可回收的。镍金属氢化物电池必须依照所有适用的州和联邦法律法规。
2. Cell encourages battery recycling. Our Nickel Metal Hydride batteries are recyclable through the professional waste disposal company. Nickel Metal Hydride batteries must be handled in accordance with all applicable state and federal laws and regulations.

不焚烧或电池温度超过100℃,这样的方法可以导致电池破裂，蒸发液体电解质。焚烧可能导致金属合金烟雾排放。

14. Transport Information运输信息

According to 2022 IATA Dangerous Goods Regulations 63rd Special Provision A199.

根据2022年IATA危险物品规则第63版特殊条款A199.

The UN number UN 3496 is only applicable in sea transport. Nickel-metal hydride batteries or nickel-metal hydride battery-powered devices, equipment or vehicles having the potential of a dangerous evolution of heat are not subject to these Regulations provided they are prepared for transport so as to prevent:

联合国编号UN 3496仅适用于海运。镍氢电池或镍氢电池供电的装置、设备或车辆有可能产生危险的热量，不受本条例的约束，前提是它们运输时能够防止以下情况:

(a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals);

短路（例如，对于电池，通过对暴露的端子进行有效绝缘；或者，对于设备，通过断开电池和保护暴露的端子）；

(b) unintentional activation.

意外激活。

According to IMO IMDG Code (inc Amdt. 40-20) SP963. Ni-MH button batteries or Ni-MH batteries installed or included in equipment are not restricted.

根据IMO IMDG Code (inc Amdt. 40-20) 特殊条款963，安装或包含在设备中的镍氢纽扣电池或镍氢电池不受限制.

All other nickel-metal hydride batteries must be securely packed and prevent short circuit. If the total weight in a single cargo transport package does not exceed 100 kg, they are not restricted. If the total weight is 100 kg or more, the requirements of section 5.4.1, 5.4.3 and columns 16a and 16b of section 3.2 of the IMO IMDG Code (inc Amdt. 40-20) should be met.

所有其他镍氢电池须牢固包装并防短路。如果单个货物运输组件中的总重量不超过100公斤，则不受限制。如果总重量为100公斤或更多，需要满足IMO IMDG Code (inc Amdt. 40-20)中5.4.1、5.4.3和第3.2章危险货物一览表第16a栏和16b栏的要求。

For nickel-metal hydride batteries transport, with a total weight of 100 kg or more in a single cargo transport package, the UN number is UN3496.

对于镍氢电池单独运输，单个货物运输组件中的总重量为100公斤或更多的情况，UN编号为UN3496.**(a) UN number UN编号**

UN3496

(b) UN Proper shipping name UN 适当的运输名称

Batteries, Nickel-metal hydride

电池,镍金属氢化物

(c) Transport hazard class(es) 运输风险类

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15. Regulatory Information监管信息

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)

《资源保护及恢复法案》

《Resource Conservation and Recovery Act》(RCRA)

《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

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 Tiansu Calibration and Testing Co.,Ltd.,doesn't assume responsibility for any damage or loss because of misuse of batteries.

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，深圳天溯计量检测股份有限公司不承担任何责任。

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   除非全部复制，否则无深圳天溯计量检测股份有限公司书面批准本报告不得部分复制。

3. This report is invalid without the signature of the approver, reviewer, and tester.
   本报告无批准人、审核人及检测人签名无效。

4. The test report is invalid if altered.
   本报告涂改无效。

5. Objections to the test report must be submitted to Tiansu within 15 days.
   对检测报告若有异议，应于收到报告之日起十五天内向检测单位提出。

6. The test report is valid for the tested samples only.
   本报告仅与送检样品有关。

-- End of report --
-- 报告结束 --