报告编号/Report No.:
P22031200701

材料安全数据表

Material Safety Data Sheet

产品名称:	Rechargeable Li-ion Battery IBE002GD(INR18650-25PG)
Name of Products:	可充式锂离子电池IBE002GD(INR18650-25PG)
委托单位:	ICON ENERGY SYSTEM (SHENZHEN) CO., LTD
Applicant:	博科能源系统（深圳）有限公司
签发日期: Date of issue:	2022-03-15

Shenzhen NTEK New Energy Technology Co., Ltd.

深 圳 市 北 测 新 能 源 技 术 有 限 公 司

1. 化学品及企业标识
CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

产品名称 Name of Products	可充电锂离子电池 Rechargeable Li-ion Battery
型号 Model/Type	IBE002GD(INR18650-25PG)
额定参数 Ratings	25.2V 7050mAh 177.66Wh
委托单位 Applicant	博科能源系统（深圳）有限公司 ICON ENERGY SYSTEM (SHENZHEN) CO., LTD
委托单位地址 Address of Applicant	深圳市龙华区观湖街道鹭湖社区观清路4号201、401、501，厂房B栋201、301、401、501 201, 301, 401, 501 of Plant B and 201, 401, 501, No.4 Guanqing Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen City, Guangdong Province, P.R. China
生产厂商 Manufacturer	博科能源系统（深圳）有限公司 ICON ENERGY SYSTEM (SHENZHEN) CO., LTD
生产厂商地址 Address of manufacturer	深圳市龙华区观湖街道鹭湖社区观清路4号201、401、501，厂房B栋201、301、401、501 201, 301, 401, 501 of Plant B and 201, 401, 501, No.4 Guanqing Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen City, Guangdong Province, P.R. 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” EEC Directive 93/112/EC
应急电话 Emergency telephone call	+86-755-61828818
报告生效日期 Report effective date	2022-03-15
编制人 Prepared by	叶志标 Bill Ye
批准人 Approved by	张士杰 Jesse Zhang 报告单位（盖章） Seal of NTEK

2. 成分/组成信息
COMPOSITION INFORMATION

化学成分 Chemical Composition	化学式 Chemical Formula	CAS 号 CAS No.	重量百分比 Weight (%)
Lithium Cobalt Oxide	$LiCoO_2$	12190-79-3	32
Graphite	$C_{24}X_{12}$	7782-42-5	18
Lithium hexafluorophosphate	$LiPF_6$	21324-40-3	5.6
Ethylene carbonate(EC)	$C_3H_4O_3$	96-49-1	2
Ethyl methyl carbonate(EMC)	$C_4H_8O_3$	623-53-0	1
Nickel	Ni	7440-02-0	1.2
Aluminum	Al	7429-90-5	5.3
Copper	Cu	7440-50-8	11
Carbon	C	7440-44-0	1
Polyvinylidene fluoride	$(C_2H_2F_2)n$	24937-79-9	0.4
Cellulose Sodium	/	9000-11-7	0.5
Polyethylene(PE)	$(C_2H_4)n$	9002-88-4	3
Polyethylene terephthalate	$(C_{10}H_8O_4)n$	25038-59-9	12

3. 危险性概述
Hazards Identification

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	该电池瓦时率为177.66Wh, 属于锂离子电池 The watt-hour rate of the battery is 177.66Wh, which belong to the Lithium-ion batteries

4. 急救措施
First aid measures

电池外壳破裂，内容物接触人体会产生危害，一旦发生接触，应采取以下应急措施：
Once battery shell rupture, content contact with the human body will produce harm, once contact, should take the following emergency measures:

眼睛：
万一接触，立即用大量的清水冲洗至少15分钟，翻起上下眼睑，直到化学的残留物消失为止，迅速就医。

Eye
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

皮肤：
万一接触，用大量水冲洗至少15分钟，同时除去污染的衣物和鞋子，迅速就医。

Skin
Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

吸入：
立即从暴露处移至空气清新处，如果呼吸困难给予输氧，立即就医。

Inhalation
Remove from exposure and move to fresh air immediately. Use oxygen if available.

食入：
饮用两杯牛奶或水。如果当事人仍然清晰可以采取催吐的方法，并且立即就医。

Ingestion

Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician

5. 消防措施
Fire-fighting measures

燃点：不适用

Flash Point: N/A.

自燃温度：不适用

Auto-Ignition Temperature: N/A.

灭火介质：大量水（降温），二氧化碳

Extinguishing Media: Water, CO_2.

特殊灭火程序：自给式呼吸器

Special Fire-Fighting Procedures: Self-contained breathing apparatus.

异常火灾或爆炸：当电芯暴露于过热的环境中时，安全阀可能会打开。

Unusual Fire and Explosion Hazards: Cell may vent when subjected to excessive heat-exposing battery contents.

燃烧产生的危险物品：一氧化碳，二氧化碳，锂氧化物烟气

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

6. 泄露应急处理
Accidental release measures

为防止电池材料泄露或释放采取的措施

如果电池内部材料泄露，试验人员应立刻撤离试验区直到烟气消散。将通风设备打开吹散危险性气体。用抹布擦净试验区，清除溢出的液体，将泄露电池放进塑料袋中，然后放进钢制容器。避免皮肤和眼睛接触或吸入有害气体。

Steps to be Taken in case Material is Released or Spilled

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

废弃物处置方法

建议将电池完全放电，消耗电池内部的锂金属，并且深埋于土壤中。

Waste Disposal Method

It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, and to bury the discharged battery in soil.

7. 操作处置和储存
Handling and storage

禁止打开、毁坏或焚烧电池，因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。

The battery 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. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

操作处置和储存中的防范措施

禁止物理或电滥用，禁止高温储存，最好将电池储存在阴凉、干燥、通风等温度变化较小的环境中。禁止将电池接触加热设备或将电池直接暴露与阳光中。

Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for longperiods.

其他要注意的防范措施

拆解、挤压、直接放入火中或高温条件下，电池可能发生爆炸和燃烧。禁止短接或将电池正负极错误的安装在设备中。

Other Precautions

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

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

呼吸防护：当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。

Respiratory Protection

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

通风条件

正常使用条件下不需要。

Ventilation

Not necessary under conditions of normal use.

防护手套

正常使用条件下不需要。

Protective Gloves

Not necessary under conditions of normal use.

其他防护服装或设备

正常使用条件下不需要。

Other Protective Clothing or Equipment

Not necessary under conditions of normal use.

电池开阀试验时应做好个人防护

呼吸防护，防护手套，防护服装和有护边的安全玻璃罩都是要准备的。

Personal Protection is recommended for venting battery

Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

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

外形：弧形

Appearance: Cambered

认证编号：P22031200701

Ref, No.: P22031200701

气味： 泄漏时，有醚的气味。

Odour: If leaking, smells of medical ether.

酸碱度：不适用

pH: Not applicable as supplied.

燃点：除单个电芯暴露试验外其他不适用。

Flash Point: Not applicable unless individual components exposed.

可燃性：除单个电芯暴露试验外其他不适用。

Flammability: Not applicable unless individual components exposed.

相对密度：除单个电芯暴露试验外其他不适用。

Relative density: Not applicable unless individual components exposed.

溶解性（水溶性）：除单个电芯暴露试验外其他不适用。

Solubility (water): Not applicable unless individual components exposed.

溶解性（其他）：除单个电芯暴露试验外其他不适用。

Solubility (other): Not applicable unless individual components exposed.

10. 稳定性和反应活性
Stability and reactivity

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 7.

应避免的条件：加热 70°C 以上或焚烧。变形。毁坏。粉碎。拆卸。过充电。短路。长时间暴露在潮湿的条件下。

Conditions to Avoid : Heat above 70°C or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.

应避免的材料：氧化剂，碱，水。

Materials to avoid: Oxidising agents, alkalis, water.

危险分解物：有毒烟雾，并可能形成过氧化物。

Hazardous Decomposition Products : Toxic Fumes, and may form peroxides.

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. 毒理学资料
Toxicological information

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 server irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.

12. 生态学资料
Ecological information

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：慢慢地生物降解。

Bioaccumulation potential: Slowly Bio-degradable.

环境危害：目前没有已知的环境危害。

Environmental fate: None known environmental hazards at present.

13. 废弃处置
Disposal consideration

不要焚烧，或使电池温度超过 70°C，这种滥用可导致泄漏和/或电池爆炸。按照相应的地方性法规处理。

Do not incinerate, or subject cells to temperature in excess of 70°C, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

14. 运输信息
Transport information

关于运输，引用并考虑了下列规定:

With regard to transport, the following regulations are cited and considered:

-国际民用航空组织(ICAO)技术说明(2021 - 2022年版)：包装说明965。

- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing instruction 967, section Ⅰ(2021-2022 Edition).

-国际航空运输协会(IATA)危险品规则(第63版，2022年)：包装指令965。

- The International Air transport Association (IATA) Dangerous Goods Regulations, Packing instruction 967, section Ⅰ(63rd Edition, 2022).

-《国际海上危险货物规则》(修订40-20版)。

- The International Maritime Dangerous Goods (IMDG) Code (Amendment 40-20 Edition).

-美国危险材料法规49CRF(联邦法规代码)。

- The US Hazardous Materials Regulation 49CRF (Code of Federal Regulations).

-《联合国关于危险货物运输的建议》、《试验和标准手册》38.3章节：锂电池。

- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries.

-运输名称：锂离子电池，UN编号： UN3480。

-Proper shipping name and UN ID number: LITHIUM ION BATTERIES, UN No.: UN3480.

产品分类、描述、包装、标记和标签都是正确的运输条件符合所有适用的国际和国家政府规定

应按9类危险品运输。产品符合联合国试验和标准手册第38.3章节的测试和要求。

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, and should be transported as Class 9 hazardous material. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Tests and Criteria.

联合国试验和标准手册38.3章节试验结果：

Test results of the UN Recommendation on the Transport of Dangerous Goods:

编号 No.	测试项目 Test items	测试结果 Test results	备注 Remark
T1	低气压 Altitude simulation	符合 Pass	-
T2	温度试验 Thermal test	符合 Pass	-
T3	震动 Vibration	符合 Pass	-

T4	冲击 Shock	符合 Pass	-
T5	外部短路 External short circuit	符合 Pass	-
T6	撞击 Impact	符合 Pass	-
T7	过充 Overcharge	符合 Pass	-
T8	强制放电 Forced discharge	符合 Pass	-

以下信息提供作为国内和国际运输依据
The following information is provided for domestic and international transportation:

DOT规则: **DOT regulations:**		
运输危险类别 UN Classification (Transport Hazard class):	9	
UN 编号: UN number:	3480	
包装等级: Packing group:	II	
运输专用名称: UN Proper shipping name(technical name):	锂离子电池/LITHIUM ION BATTERIES	
是否海洋污染物 Marine pollutant(Y/N)	否 N	
标签: Label:	9类（锂电池） Class 9 (Lithium batteries)	
陆运: **Land transportation ADR/RID (cross-broder):**		
ADR/RID分类: ADR/RID class:	9	
UN编号: Danger code(Kemler):	3480	
包装等级: Packaging group:	II	
是否海洋污染物 Marine pollutant(Y/N):	否 N	
标签: Label:	9类（锂电池） Class 9 (Lithium batteries)	
运输专用名称: Description of goods:	锂离子电池/LITHIUM ION BATTERIES	
海洋运输: **Sea transport IMDG:**		
类别: Class or division:	9	
UN编号: UN Number:	3481	
标签: Label:	9类（锂电池） Class 9 (Lithium batteries)	
包装等级: Packaging group:	II	
EMS 编号: EMS Number:	F-A, S-I	
是否海洋污染物	否	

Marine pollutant(Y/N):	N	
运输专用名称: Propper shipping name:	锂离子电池/LITHIUM ION BATTERIES	
航空运输: **Air transport ICAO-TI and IATA-DGR:**		
类别: Class or division:	9	
UN编号: UN Number:	3481	
标签: Label:	9类（锂电池） Class 9 (Lithium batteries)	
包装等级: Packaging group:	II	
是否海洋污染物 Marine pollutant(Y/N):	否 N	
运输专用名称: Propper shipping name:	锂离子电池/LITHIUM ION BATTERIES	

15. 法规信息
Regulation information

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 Title III (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. 其他信息
Other Information

本文件仅对由委托方【博科能源系统（深圳）有限公司】提供的，并由博科能源系统（深圳）有限公司生产的电池（IBE002GD(INR18650-25PG)）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，深圳市北测新能源技术有限公司不承担任何责任。

This file is only effective to the batteries (IBE002GD(INR18650-25PG)) provided by commissioner {ICON ENERGY SYSTEM (SHENZHEN) CO., LTD} which manufactured by ICON ENERGY SYSTEM (SHENZHEN) CO., LTD 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 NTEK New Energy Technology Co., Ltd. doesn't assume responsibility for any damage or loss because of misuse of batteries.

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注意事项
Important Notice

1. 本报告书无本公司报告专用章、骑缝章无效。

   The test report is invalid without the Report Seal of NTEK and Paging seal of NTEK.

2. 未经本试验室书面同意，不得部分地复制本报告。

   Nobody is allowed to photocopy or partly photocopy this test report without written permission of NTEK.

3. 本报告书无批准人、及编制人签名无效。

   The test report is invalid without the signatures of Approved and Preparer.

4. 私自转让、复制、盗用、冒用、涂改、或以任何媒体形式篡改的报告书无效。

   The report is invalid when anything of following happens – illegal transfer, reproduce, embezzlement, imposture, modification or tampering in any media form.

5. 对报告书若有异议，应于收到报告之日起15天内向本公司提出。

   Objections to the test report must be submitted to NTEK within 15 days.

6. 本报告仅对测试样品有效。

   The test report is valid for the tested samples only.

7. 本报告中的中文内容仅供参考。

   The Chinese contents in this report are only for reference.

深圳市北测新能源技术有限公司

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