



Lithium Battery Safety Document – Section II or Section IB Shipments

AWB or Tracking Number: _____

This document may be used to comply with the additional documentation requirements of the IATA DGR.

WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR SAFETY REASONS **MUST NOT** BE SHIPPED BY AIR.

Terminology:

- Cell – *electrochemical unit, consisting of an anode and a cathode, capable of generating electrical current*
- Battery – *assembly of cells*
- Lithium ion cells/batteries – *generally rechargeable – includes lithium polymer cells/batteries*
- Lithium metal cells/batteries – *non-rechargeable*

This shipment contains lithium cells or batteries in the following configuration (check applicable description):

Lithium Ion - Maximum of • 20 Watt-hours per cell or • 100 Watt-hours per battery	Lithium Metal – Maximum of • 1 gram of lithium metal per cell or • 2 grams of lithium metal per battery
☐ Cells or batteries only (Lithium ion batteries in compliance with Section II of PI 965, UN 3480) - <i>Cells or batteries in a package, without electronic equipment:</i> Package Limit: ≤2.7 Wh = 2.5 kg; <u>or</u> >2.7 Wh but ≤ 20 Wh = 8 cells; <u>or</u> >2.7 Wh but ≤ 100 Wh = 2 batteries	☐ Cells or batteries only (Lithium metal batteries in compliance with Section II of PI 968, UN 3090) - <i>Cells or batteries in a package, without electronic equipment.</i> Package Limit: ≤0.3 g = 2.5 kg; <u>or</u> >0.3 g but ≤ 1 g = 8 cells; <u>or</u> >0.3 g but ≤ 2g = 2 batteries
☒ Cells or batteries only (Lithium ion batteries in compliance with Section IB of PI 965, UN 3480) - <i>Cells or batteries in a package, without electronic equipment</i> <i>Packages must be limited to 10 kg net weight of batteries.</i>	☐ Cells or batteries only (Lithium metal batteries in compliance with Section IB of PI 968, UN 3090) - <i>Cells or batteries in a package, without electronic equipment</i> <i>Packages must be limited to 2.5 kg net weight of batteries..</i>
☐ Packed with equipment (Lithium ion batteries in compliance with Section II of PI 966, UN 3481) - <i>Cells or batteries contained in a package with associated electronic equipment.</i> <i>Packages must be limited to 5 kg net weight of batteries.</i>	☐ Packed with equipment (Lithium metal batteries in compliance with Section II of PI 969, UN 3091) - <i>Cells or batteries contained in a package with associated battery-powered equipment – with the batteries not installed in the equipment.</i> <i>Packages must be limited to 5 kg net weight of batteries.</i>
☐ Contained in equipment (Lithium ion batteries in compliance with Section II of PI 967, UN 3481) - <i>Cells or batteries installed in equipment.</i> <i>Packages must be limited to 5 kg net weight of batteries.</i>	☐ Contained in equipment (Lithium metal batteries in compliance with Section II of PI 970, UN 3091) - <i>Cells or batteries installed in equipment.</i> <i>Packages must be limited to 5 kg net weight of batteries.</i>

- This package must be handled with care. A flammability hazard exists if the package is damaged.
- If this package is damaged in transportation, it must not be loaded until the condition of the contents can be verified. The batteries contained in this package must be inspected for damage and may only be repacked if they are intact and protected against short circuits.
- For more information about the batteries contained in this package, call the following telephone number:

CHEMTREC for Lithium Battery Information Number:

For EMERGENCY information call 800-424-9300 or outside the United States call 703-527-3887



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	Document Name: 0033.001_Safety Data Sheet	Rev.
	Page 1 of 7	04

File Number: SDS_0033.001_QX_2025_R01
Date: 2025-01-01

Section 1 -- Product and Company Identification

Product Name: Rechargeable Li-Ion Battery Pack

Product Model No.: NTP2S1P-3

Inventus Part No: 0033.001

MANUFACTURING SITE:

Inventus Power, Inc.

1200 Internationale Parkway, Woodridge IL 60517

EMERGENCY TELEPHONE NUMBER:

Inside the US: 1-800-424-9300

Outside the US: 1-703-527-3887

FACTORY SITE:

Name: ICC Electronics (Dongguan) Ltd.

Address1: No.23, Shang Yuan Road, QingXi Town, Dongguan City, Guangdong Province, China

Telephone number: +86 769 87731085

Emergency telephone number: +86 769 87731085

Section 2 -- Composition / Information on Ingredients

Battery Product Matrix:

Inventus Power P/N	Customer P/N	Pack Configuration	Pack Nominal Voltage V	Pack Nominal Capacity (Ah)	Pack Energy (Wh)
0033.001	NTP2S1P-3	2S1P	7.2	2.52	18.14



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Battery Chemical Composition:

Component	Material	Formula	CAS Number	Percentage range (wt. %)
Positive Electrode	Lithium Nickel Cobalt manganese Oxide	LiNiMnCoO ₂	182442-95-1	25~33%
Negative Electrode	Graphite	C	7782-42-5	15~25%
Electrolyte	Ethylene Carbonate	C ₃ H ₄ O ₃	96-49-1	2~5%
	Diethyl Carbonate	C ₅ H ₁₀ O ₃	105-58-8	2~5%
	Lithium Hexafluorophosphate	LiPF ₆	21324-40-3	15-22%
Outer case	Aluminum	Al	7429-90-5	5%
	Copper	Cu	7440-50-8	5%
	Iron	Fe	7439-89-6	5%

Section 3-- Hazards Identification

Under normal usage, there is no contact with electrolyte and no hazard exists. Abusive conditions such as crush, severe drop, puncture etc. must be avoided as that can lead to fire and explosion of the battery. If exposed to high temperature or fire, cell may leak electrolyte and in extreme cases explode. The vented gas may contain among others Hydrogen Fluoride.

The information in this section relates to unusual conditions resulting from abuse in which the battery electrodes and electrolytes are exposed.

Most severe hazard present in case of fire. Fire can cause explosion, exposure to toxic fume/Vapor

i. GHS Classification

Skin irritation	(Category 2)
Skin sensitization	(Category 1)
Eye irritation	(Category 2)
Single target organ, toxicity, single exposure	(Category 3)
Carcinogen	(Category 1B)

ii. GHS Label elements, including precautionary statements

Pictograms



Signal word

Danger/Warning

	Document Name: 0033.001_Safety Data Sheet	Rev.
	Page 3 of 7	04

iii. Hazard statements

H315 Causes skin irritation in case of breach of battery casing

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation in case of leak or spill of electrolyte, again under abuse conditions

H335 May cause respiratory irritation when exposed to fumes from fire, but not under normal usage conditions

R10 Flammable

iv. Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection / face protection.

P312 Call a POISON CENTER or doctor/ physician if exposed to fumes or electrolyte

P313 Get Medical Attention

P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Section 4 -- First Aid

Under normal operating condition, contents of the cells are in sealed (polymer pouch/metal can or cylinder) condition and pose no threat to the user.

Exposure to the cell internal content happens under abusive conditions.

Inhalation: Contents of open battery may cause respiratory irritation. Move to fresh air immediately and seek medical attention.

Skin: Contents of open battery may cause skin irritation. Wash skin with copious amount of soap and water.

Eye: Contents of open battery may cause eye irritation. Flush eyes immediately with water for at least 15 minutes and seek medical attention.

Ingestion: Seek medical attention immediately. Induce vomiting.

Section 5 -- Fire Fighting

In case of Fire use CO2 ,CLASS ABC or if AFD fire extinguisher.

In case battery burns with other combustible, use corresponding fire extinguisher. Corrosive fumes may be present during fire. Use protective equipment (gloves, breathing apparatus, goggles etc.)

Gases from the burning fire will include Hydrogen Fluoride, Carbon oxides, Hydrocarbons among others.

Section 6 -- Accidental Release

Battery material is enclosed in either metal casing or in laminate and does not release easily under normal usage. Under abuse condition such as puncture, high heat exposure, electrical abuse electrolyte containing vinyl chloride salt in organic solvent may leak out. See section 4 for first aid measure. Seek medical attention.

Contain the spillage with sand or vermiculite and if necessary bunding.

Do not dispose of spillage waste into regular waste stream.

Section 7 -- Instructions on Safe Handling and Use

Storage: Store within the recommended temperature limit of the battery (read instruction manual for specific limits). Do not expose to high temperature (60°C/140°F). Avoid short circuit of the battery. Short circuit of the battery may cause release of gas and may pose burn hazard.

Handling: Do not disassemble, crush, or otherwise abuse the battery. Do not open the battery.

Charge: Charge only with dedicated/specific chargers designed for this battery

Discharge: Discharge within the temperature limits of the battery detailed in the specification.

Disposal: Dispose/Recycle according to the applicable municipal, state, and federal regulations. Do not dispose in household or commercial waste bin.

Caution: This battery when abused may pose fire, explosion, and severe burn hazard. Handle with caution.

Section 8 -- Exposure Control and Special Protection Information

Control Parameters:

Components with workplace controls:

Graphite CAS 7782-42-5	TWA	2.5 mg/m3	USA, NIOSH recommended exposure limits
		5 mg/m3	USA, OSHA limits for air contaminants
		5 mg/m3	USA, OSHA occupational exposure limits
		3 mg/m3	Australian workplace exposure standards for airborne contaminants
	TWA	2 mg/m3	Canada, British Columbia OEL
			Canada, Alberta OEL
	TWAEV	5 mg/m3	Canada, Quebec OELs
	TWA	2.5 mg/m3	USA, OSHA limits for air contaminants
			USA, OSHA occupational exposure limits
Lithium CAS 21324-40-3 hexafluorophosphate	TLV	2.5 mg/m3	USA, ACGIH Threshold Limit Value
	TWA	2.5 mg/m3	Australian workplace exposure standards for airborne contaminants
	TWA	2.5 mg/m3	Canada, British Columbia OEL
			Canada, Alb. OEL
	TWAEV	2.5 mg/m3	Canada, Quebec OELs

Engineering Controls:

Have eye bath available.

Use non-sparking tools.

Protective Equipment: Wear chemical-resistant gloves and chemical safety goggles.

Hygiene: Follow good industrial hygiene procedures. Keep away from food, beverages.

Use safety precautions for handling high voltage, high wattage battery.

Use safety goggles, acid resistant safety gloves, air mask if exposed to internal content of the cell/battery.

Section 9 -- Physical and Chemical Properties

Appearance: Solid

Form Factor: Mostly rectangular

Odor: N/A

PH: N/A

Flash Point: N/A

Density: N/A

Solubility: Insoluble in Water

Section 10 -- Stability and Reactivity

Not reactive under normal condition of usage.

Note safe handling procedure.

Avoid high temperature, high humidity and mechanical abuse, short circuit, and sparks

Read label and manufacturer instruction before usage and disposal

Section 11 -- Toxicological Effect

Acute Toxicity:

Not known for Lithium Nickel Cobalt manganese Oxide, Aluminum, and Graphite

Copper causes gastrointestinal disturbance in 60-100mg sized coarse particulate. TDLo- Rabbit 375mg/kg

Organic electrolyte LD50, oral - -Rat 2000mg/kg or more

Local Effects:

Not known for Lithium Cobaltite, Graphite and Organic Electrolyte or Lithium Phosphate.

Aluminum has no known local effects.

Copper in coarse particulate is eye irritant

No known carcinogen in this product.

	Document Name: 0033.001_Safety Data Sheet	Rev.
	Page 6 of 7	04

Section 12 -- Ecological Information

Battery is not biodegradable. Do not dispose in landfill. Please follow local regulations regarding recycle and disposal.

No data available on aquatic toxicity, Bio accumulative potential, Mobility in soil.

Section 13 -- Disposal Information

Dispose/Recycle according to the applicable municipal, state, and federal regulations. Do not dispose in household or commercial waste bin or stream. Battery label contains Eu Battery directive compliant marking. Follow local and federal regulations for disposal and recycle of lithium-ion batteries.

Section 14 -- Transportation Information

Proper Shipping Name: Lithium-Ion Batteries.

The UN number for the battery pack is UN3480, and it also can be UN3481 when the battery pack is contained in the equipment or packed with the equipment.

The battery meets the requirements of the test in the United Nations (UN) Manual of Tests and Criteria, Part III, sub-section 38.3

DOT: Refer to Attachment ERG 2024 guide 147 (Lithium-Ion battery Guide)

IMDG: Refer to IMDG/Ocean Transport ENS F-A, S-I

IATA: Refer to IATA-ICAO/Air Transport ERG CODE 12FZ

When large number of batteries are transported by ship, vehicle and railroad, avoid high temperature and dew condensation.

Avoid transportation which may cause damage of package.

Section 15 -- Regulatory Information

This product is considered an article under the chemical inventories listed below and consequently is exempt from listing on these inventories:

- US EPA Toxic Substance Control Act (TSCA)
- European Inventory of Existing Chemical Substances (EINECS/ELINCS)
- Other International Regulations

Transport of rechargeable lithium-ion batteries is regulated by various bodies, (IATA, IMO, US-DOT) that follow the United Nations "Recommendations on the Transport of Dangerous Goods.

Regulations specifically applicable to the product:

ICAO 2025/2026 Edition of ICAO Technical Instructions for the Safety Transport of Dangerous Goods by Air
IMO IMDG Amendment 41-22 2022 Edition. battery pack complies with the special provision 188 of the IMDG CODE.

	Document Name: 0033.001_Safety Data Sheet	Rev.
	Page 7 of 7	04

IATA 66th Edition (2025) of the IATA Dangerous Goods Regulations (DGR),
US Department of Transportation DOT (49 CFR 100-185), (USA)
OSHA hazard communication standard (29 CFR 1910.1200)

The battery is complied with the requirements of PI965, IB for Packs <100Wh
Batteries shipped with or contained in equipment must follow IATA Packing Instruction 966, Section II or PI967, Section II.
Shipment must accompany dangerous goods shipping paper.
Employees handling lithium-ion batteries must receive dangerous goods/hazmat training.

Section 16 -- Other Information

The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for applications.
Although the electrolyte contains chemicals that by itself can cause harm, it is not present in an amount or form to cause splash.



UN38.3 试验概要

UN38.3 Test Summary



812400300492459

单位信息 Company information			
委托单位 Consignor	辉碧电子(东莞)有限公司广州分公司 Inventus Power, Inc.- Technical Center 广州市番禺区南村镇兴业路 921 号长华大厦西五楼 5th Floor Western, Changhua Building No.921 Xingye Road, Nancun Town, Panyu, Guangzhou City, Guangdong 511442, P.R.China		
	02039298880-6808	wilburzhang@inventuspower.com	www.inventuspower.com
生产单位 Manufacturer	辉碧电子(东莞)有限公司 ICC Electronics (Dongguan) Ltd. 广东省东莞市清溪镇上元路 23 号 No.23,Shang Yuan Road, Qing Xi Town, Dong Guan City, Guangdong P.R. China		
	13189665936	dominic.zhang@inventuspower.com	www.inventuspower.com
测试单位 Test lab	辉碧电子(东莞)有限公司广州分公司 Inventus Power, Inc.- Technical Center 广州市番禺区南村镇兴业路 921 号长华大厦西五楼 5th Floor Western, Changhua Building No.921 Xingye Road, Nancun Town, Panyu, Guangzhou City, Guangdong 511442, P.R.China		
	02039298880-6808	wilburzhang@inventuspower.com	www.inventuspower.com

电池信息 Battery information			
名称 Name	可充式锂离子电池组 Rechargeable Li-ion Battery Pack	品牌 Brand	/
型号 Type	NTP2S1P-3	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	7.2	容量/能量 Capacity/energy	2.52Ah/ 18.14Wh
描述 Description	可充电锂离子电池组 Rechargeable Li-ion battery	锂含量(g) Li content	/
质量(kg) Mass	0.144	外观 Appearance	白色塑料薄膜外壳 White plastic film shell

测试信息 Test information			
原报告编号 Original test report No.	TR-DCAL-10-0033	测试报告日期 Date of test report	2024-12-04
测试标准 Test standard	联合国《试验和标准手册》第 38.3 章 UNITED NATIONS Manual of Tests and Criteria 38.3 ST/SG/AC.10/11/Rev.7&Amend.1		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 撞击 Impact	合格 Passed
T.7 过度充电 Overcharge	合格 Passed	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/



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声 明

Statement

1. 试验概要无本实验室公章（或检验检测专用章）无效。

The test summary is invalid if it is not affixed the official seal of the laboratory to it.

2. 试验概要复印件无效。

Copies of the test summary are invalid.

3. 试验概要无签字及签字者姓名和职务无效。

The test summary is invalid without the signature, name and title of the signatory.

4. 试验概要涂改无效。

The test summary is invalid if it is blotted out.

5. 未经本实验室书面批准，不得部分复制试验概要。

It is forbidden to copy the test summary partially without the written approval of the laboratory.

6. 试验概要中描述的检测结果，仅对所测样品有效。

The conclusion of the test summary is only valid for the tested sample.

7. 试验概要以中文为准，英文文本（如有）仅为译文，两者发生冲突时，应以中文文本为准。

The test summary has been drafted in Chinese and translated into English (if exist) for convenience only. In the event of discrepancy, the Chinese version shall prevail.

地址：上海市云岭东路 345 号 Address: No. 345 East Yunling Road, Shanghai

邮政编码(PostCode): 200062

电话(Tel): (021) 31765555 传真(Fax): (021) 31015117

网址(website): www.ghs.cn

电子信箱(E-mail): battery@ghs.cn

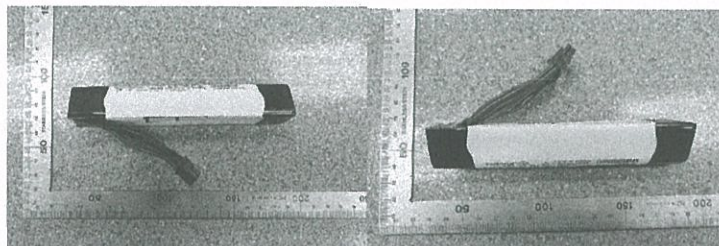


UN38.3 试验概要

UN38.3 Test Summary



样品图片 Sample Picture



inVENTUS™ POWER **cac**

Model/型号/ 型号:NTP2S1P-3
Contains:Murata#US18650VTC5D
Rechargeable Li-ion Battery Pack
可充电锂离子电池组/可充电锂离子电池组
Rated capacity/额定容量:2.52Ah
Nominal energy/额定能量:18.14Wh
Nominal voltage/标称电压/標稱電壓:7.2VDC
充电限制电压:8.3VDC
生产厂:辉碧电子(东莞)有限公司
Manufacturer/制造商:Inventus Power, Inc.
Made in China 中國制造/中国制造

BLACK Red 21NR19/66 (4L)C



结论 Conclusion	测试样品符合联合国《试验和标准手册》ST/SG/AC.10/11/Rev.7&Amend.138.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS Manual of Tests and CriteriaST/SG/AC.10/11/Rev.7&Amend.138.3		
备注 Remark	/		
签名 Signature 职务 Title	 王寅 副总工程师 Vice chief engineer	签发日期 Issued date	2024-12-11

-验证码:984982-

报告结束