# SAFETY DATA SHEET

Issuing Date 24- July -2023 Revision Date 24- July -2023 Revision Number 1

NGHS / English



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# 1. IDENTIFICATION

Product identifier 084952

Product Name Rechargeable Li-ion battery

Other means of identification

Product Code(s)

Recommended use of the chemical and restrictions on use

Recommended Use LITHIUM ION BATTERIES

**Restrictions on use**No information available

Details of the supplier of the safety data sheet

Supplier Identification Inventus Power, Inc

Address 1200 Internationale Parkway, Woodridge, IL 60517 USA

Woodridge Illinois 60517 US

Telephone Phone:86.20.39298880

Fax:86.20.39958318

E-mail ligang@inventuspower.com

Emergency telephone number

**Company Emergency Phone** 

Number

86.20.39298880-6802

# 2. HAZARDS IDENTIFICATION

#### Classification

Acute toxicity - Oral Category 4



Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 1

This is a battery. In case of rupture: the above hazards exist.

Appearance No information available Physical state Solid Odor No information available

#### GHS Label elements, including precautionary statements

#### **Danger**

#### Hazard statements

Harmful if swallowed May cause an allergic skin reaction May cause cancer Causes damage to organs through prolonged or repeated exposure



#### **Precautionary Statements - Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

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

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Contaminated work clothing must not be allowed out of the workplace

Do not breathe dust/fume/gas/mist/vapors/spray

## **Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention

Specific treatment (see supplemental first aid instructions on this label)

### Skin

IF ON SKIN: Wash with plenty of water and soap

If skin irritation or rash occurs: Get medical advice/attention

Wash contaminated clothing before reuse

## Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Rinse mouth

#### **Precautionary Statements - Storage**

Store locked up

#### **Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

### Other information

Causes mild skin irritation. Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity 100 % of the mixture consists of ingredient(s) of unknown toxicity



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80 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance

Not applicable.

#### Mixture

Chemical name	CAS-No	Percent	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Nickel	7440-02-0	5	-	-
Cobalt lithium manganese nickel oxide	182442-95-1	31	-	-
Carbon	7440-44-0	23	-	-
Ethylene Carbonate	96-49-1	4	-	-
Diethyl Carbonate	105-58-8	3	-	-
Phosphate(1-), hexafluoro-, lithium	21324-40-3	19	-	-
Copper	7440-50-8	5	-	-
Aluminium	7429-90-5	5	-	-
Iron	7439-89-6	5	-	-

## 4. FIRST AID MEASURES

First aid measures

General advice First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in

attendance. IF exposed or concerned: Get medical advice/attention.

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.

Consult a physician.

**Skin contact** Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation

or allergic reactions see a physician.

**Ingestion** Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water.

Never give anything by mouth to an unconscious person. Call a physician.

Most important symptoms and effects, both acute and delayed

**Symptoms** Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed



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Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

surrounding environment.

**Unsuitable extinguishing media** CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the

chemical

Product is or contains a sensitizer. May cause sensitization by skin contact.

Hazardous Combustion Products Carbon oxides.

**Explosion Data** 

Sensitivity to Mechanical Impact None. Sensitivity to Static Discharge None.

Special protective equipment for

fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout

gear. Use personal protection equipment.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal

protective equipment as required. Evacuate personnel to safe areas. Keep people away

from and upwind of spill/leak.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

Precautions for safe handling

**Advice on safe handling** In case of rupture: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this

product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach

of children. Store locked up.



# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Control parameters

Exposure Limits

Chemical name		ACGIH T	LV	0:	SHA PEL		NIOSH IE	DLH
Cobalt lithium manganese	nickel	TWA: 0.5 mg/m <sup>3</sup> N			: 3 mg/m³ Ni		IDLH: 10 m	
oxide		particulate n	natter	(vacated)	TWA: 1 mg/m³ Ni		TWA: 5 mg	g/m <sup>3</sup>
182442-95-1		TIMA - O/3		T) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			IDI III 4050	/ 3
Graphite 7782-42-5		TWA: 2 mg/m <sup>3</sup> particulate matte			ng/m³ total dust ynthetic	Τ\Λ/Λ	IDLH: 1250 i : 2.5 mg/m <sup>3</sup>	mg/m³ respirable
1102-42-3		except graphit			g/m³ respirable	IVVA	2.5 mg/m dust	respirable
		CACCPI GIAPIIII	C IIDCI3		n synthetic		dust	
					TWA: 2.5 mg/m <sup>3</sup>			
					e dust natural			
					/A: 10 mg/m <sup>3</sup> total			
					synthetic			
					TWA: 5 mg/m <sup>3</sup>			
					raction synthetic 5 mppcf natural			
Copper		TWA: 0.2 mg/m <sup>3</sup> f	iume TWA: 1		1 mg/m <sup>3</sup> fume	IDI H	: 100 mg/m <sup>3</sup>	dust fume
7440-50-8		mg/m <sup>3</sup> Cu dust			m <sup>3</sup> dust and mist		nist IDLH: 10	
		g, Ga aast			WA: 0.1 mg/m <sup>3</sup> Cu		dust and r	
				dust	, fume, mist			dust and mist
							0.1 mg/m <sup>3</sup>	fume TWA:
							g/m³ Cu du	
Aluminum		TWA: 1 mg/m <sup>3</sup>			ng/m³ total dust		A: 10 mg/m <sup>3</sup>	total dust
7429-90-5		particulate n	natter		g/m³ respirable fraction		A: 5 mg/m³ ust TWA: 5 m	respirable
					/A: 15 mg/m <sup>3</sup> total		15t TVVA. 5 III	g/III* AI
				(vacaica) i v	dust			
				(vacated	TWA: 5 mg/m <sup>3</sup>			
					fraction (vacated)			
					m³ Al Aluminum		_	
Chemical name		Alberta	British C		Ontario TWAE			ebec
Cobalt lithium	11	WA: 0.5 mg/m <sup>3</sup>	TWA: 0.0	)8 mg/m <sup>3</sup>	TWA: 0.5 mg/n	บา	I VVA: 1	mg/m <sup>3</sup>
manganese nickel oxide 182442-95-1								
Graphite	7	WA: 2 mg/m <sup>3</sup>	TWA: 2	2 mg/m <sup>3</sup>	TWA: 2 mg/m	3	TWA: 2	2 mg/m <sup>3</sup>
7782-42-5								g/
Copper	T	WA: 0.2 mg/m <sup>3</sup>	TWA: 1	mg/m³	TWA: 0.2 mg/n	n <sup>3</sup>	TWA: 0.	2 mg/m <sup>3</sup>
7440-50-8	7	TWA: 1 mg/m <sup>3</sup>	TWA: 0.	2 mg/m <sup>3</sup>	TWA: 1 mg/m	3	TWA: 1	mg/m³
Aluminum	TWA:	10 mg/m <sup>3</sup> TWA: 5	TWA: 1.	0 mg/m <sup>3</sup>	TWA: 1 mg/m	3		g/m <sup>3</sup> TWA: 5
7429-90-5		mg/m³					mg	/m <sup>3</sup>

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

Appropriate engineering controls

Engineering controls

Showers

Eyewash stations Ventilation systems.



#### Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are

exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or

smoke when using this product. Wash hands before breaks and immediately after handling

None known

the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical and Chemical Properties** 

**Physical state** Solid

**Appearance** No information available Odor No information available Color No information available **Odor Threshold** No information available

Property Values Remarks Method No data available None known Melting / freezing point No data available None known Boiling point / boiling range No data available None known Flash Point No data available None known **Evaporation Rate** No data available None known Flammability (solid, gas) No data available None known

Flammability Limit in Air

Upper flammability limit No data available

Lower flammability limit No data available

Vapor pressure No data available None known Vapor density No data available None known Relative density No data available None known

**Water Solubility** Insoluble in water Solubility(ies) No data available None known Partition coefficient: n-octanol/waterNo data available None known **Autoignition temperature** No data available None known **Decomposition temperature** No data available None known Kinematic viscosity No data available None known Dynamic viscosity No data available None known

Other Information

**Explosive properties** No information available **Oxidizing properties** No information available **Softening Point** No information available Molecular Weight No information available **VOC Content (%)** No information available **Liquid Density** No information available **Bulk Density** No information available **Particle Size** No information available **Particle Size Distribution** No information available

10. STABILITY AND REACTIVITY



Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of Hazardous Reactions None under normal processing.

**Hazardous Polymerization** Hazardous polymerization does not occur.

Conditions to avoid None known based on information supplied.

Incompatible materials None known based on information supplied.

Hazardous Decomposition Products Carbon oxides.

# 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

**Product Information** Product does not present an acute toxicity hazard based on known or supplied information

In case of rupture:

Inhalation Specific test data for the substance or mixture is not available.

Specific test data for the substance or mixture is not available. Eve contact

Skin contact Specific test data for the substance or mixture is not available. May cause sensitization by

skin contact. (based on components). Repeated or prolonged skin contact may cause

allergic reactions with susceptible persons.

Ingestion Specific test data for the substance or mixture is not available. Harmful if swallowed. (based

on components).

#### Information on toxicological effects

**Symptoms** Itching. Rashes. Hives.

#### Numerical measures of toxicity

#### **Acute Toxicity**

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 963.00 mg/kg

Unknown acute toxicity 100 % of the mixture consists of ingredient(s) of unknown toxicity

80 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information** 

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Iron	= 984 mg/kg (Rat)	-	-



#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No information available.

Carcinogenicity Classification based on data available for ingredients. Contains a known or suspected

carcinogen.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Cobalt lithium	A1	Group 1	Known	X
manganese nickel oxide 182442-95-1				

## Legend

**ACGIH (American Conference of Governmental Industrial Hygienists)** 

A1 - Known Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

## 12. ECOLOGICAL INFORMATION

**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to	Daphnia Magna (Water
			Microorganisms	Flea)
Iron	-	96h LC50: = 13.6 mg/L	-	-
		(Morone saxatilis)		
Copper	96h EC50: 0.031 -	96h LC50: 0.0068 -	-	48h EC50: = 0.03 mg/L
	0.054 mg/L	0.0156 mg/L (Pimephales		
	(Pseudokirchneriella	promelas) 96h LC50: =		
	subcapitata) 72h EC50:	1.25 mg/L (Lepomis		
	0.0426 - 0.0535 mg/L	macrochirus) 96h LC50:		
	(Pseudokirchneriella	= 0.052 mg/L		



5	subcapitata)	(Oncorhynchus mykiss)	
		96h LC50: = 0.2 mg/L	I
		(Pimephales promelas)	I
		96h LC50: < 0.3 mg/L	
		(Pimephales promelas)	I
		96h LC50: = 0.112 mg/L	
		(Poecilia reticulata) 96h	I
		LC50: = 0.3 mg/L	
		(Cyprinus carpio) 96h	I
		LC50: = 0.8 mg/L	
		(Cyprinus carpio)	1

Persistence and Degradability No information available.

**Bioaccumulation** There is no data for this product.

**Mobility** No information available.

Other adverse effects No information available.

## 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

Waste from residues/unused

products

Dispose of in accordance with local regulations. Dispose of waste in accordance with

environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

#### California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Copper 7440-50-8	Toxic
Aluminum 7429-90-5	Ignitable powder

## 14. TRANSPORT INFORMATION

Note:

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision"



188 of IMO-IMDG Code"

DOT **NOT REGULATED Proper Shipping Name** NON-REGULATED

**Hazard Class** N/A

**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to

DOT 147

**Emergency Response Guide** 

Number

**TDG** Not regulated

Marine Pollutant This product contains a chemical which is listed as a severe marine pollutant according to

TDG.

MEX Not regulated

**ICAO** Not regulated

IATA Not regulated

**Proper Shipping Name** NON REGULATED

**Hazard Class** N/A

IMDG/IMO Not regulated

Hazard Class N/A EmS-No. F-A, S-I

RID Not regulated

ADR Not regulated

ADN Not regulated

## 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **International Regulations**

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

**Export Notification requirements** Not applicable

International Inventories

**TSCA** Contact supplier for inventory compliance status. **DSL/NDSL** Contact supplier for inventory compliance status. **EINECS/ELINCS** Contact supplier for inventory compliance status. **ENCS** Contact supplier for inventory compliance status. Contact supplier for inventory compliance status. **KECL PICCS** Contact supplier for inventory compliance status. **AICS** Contact supplier for inventory compliance status.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances



**ENCS** - Japan Existing and New Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

### US Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	CAS-No	Percent	SARA 313 - Threshold Values %
Cobalt lithium manganese nickel oxide 182442-95-1	182442-95-1	31	0.1
Copper - 7440-50-8	7440-50-8	5	1.0
Aluminum - 7429-90-5	7429-90-5	5	1.0

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

## **CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Cobalt lithium manganese nickel oxide 182442-95-1		X		
Copper 7440-50-8		X	X	

#### **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

## **US State Regulations**

#### **California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65	
Lithium nickel oxide (LiNiO2) - 12031-65-1	Carcinogen	

## U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusett Pennsylvania	Rhode Island	Illinois



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		S			
Cobalt lithium manganese nickel oxide 182442-95-1	X		X	Х	X
Graphite 7782-42-5	Х	Х	Х		
Copper 7440-50-8	X	Х	X	Х	X
Aluminum 7429-90-5	X	Х	X	X	

# **16. OTHER INFORMATION**

NFPA Health hazards 1 Flammability 0 Instability 0 Physical and Chemical

Properties -

HMIS Health hazards 0 Flammability 0 Physical hazards 0 Personal Protection X

Prepared By Product Stewardship

23 British American Blvd. Latham, NY 12110 1-800-572-6501

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Revision Date 10- July -2023

Revision Note No information available

#### **Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet** 

