

# SAFETY DATA SHEET

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NGHS / English



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## 1. IDENTIFICATION

### Product identifier

**Product Name** Rechargeable Li-ion Battery A-BAT-0066

### Other means of identification

**Product Code(s)** 1551383

### 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** Getac Technology Corp.

**Address** 5F, Building A, No. 209, Sec 1, Nangang Rd. Nangang Dist.  
Taipei  
Taiwan  
11568  
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### Emergency telephone number

**Company Emergency Phone Number** +886-919985359

## 2. HAZARDS IDENTIFICATION

### Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (repeated exposure)	Category 1



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

**Appearance** Solid

**Physical state** Solid

**Odor** No information available

**GHS Label elements, including precautionary statements**

**Danger**

**Hazard statements**

Harmful if swallowed

Causes skin irritation

Causes serious eye irritation

Causes damage to organs through prolonged or repeated exposure



**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

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

Wear protective gloves/eye protection/face protection

**Precautionary Statements - Response**

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

Get medical advice/attention if you feel unwell

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

**Skin**

IF ON SKIN: Wash with plenty of water and soap

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash it before reuse

**Ingestion**

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

Rinse mouth

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

Very toxic to aquatic life with long lasting effects.

**Unknown acute toxicity**

106 % of the mixture consists of ingredient(s) of unknown toxicity

72 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

104 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

106 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

106 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

106 % 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.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Aluminum cobalt lithium nickel oxide	193214-24-3	41	-	-
Graphite	7782-42-5	19	-	-
Iron	7439-89-6	17	-	-
Copper	7440-50-8	7	-	-
Aluminum	7429-90-5	5	-	-
Phosphate(1-), hexafluoro-, lithium	21324-40-3	2	-	-

#### 4. FIRST AID MEASURES

**Description of first aid measures**

<b>General advice</b>	Show this safety data sheet to the doctor in attendance. First aid is upon rupture of sealed battery.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	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.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Burning sensation.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

#### 5. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Large Fire</b>	CAUTION: Use of water spray when fighting fire may be inefficient.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.
<b>Specific hazards arising from the</b>	No information available.



**chemical****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** Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.**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. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. 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.**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters****Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Aluminum cobalt lithium nickel oxide 193214-24-3	TWA: 0.02 mg/m <sup>3</sup> Co inhalable particulate matter	-	IDLH: 10 mg/m <sup>3</sup> Ni TWA: 0.015 mg/m <sup>3</sup> except Nickel carbonyl Ni
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust

		(vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural		
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume	
Aluminum 7429-90-5	TWA: 1 mg/m <sup>3</sup> respirable particulate matter	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust	
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F (vacated) TWA: 2.5 mg/m <sup>3</sup>	IDLH: 250 mg/m <sup>3</sup> F	
<b>Chemical name</b>	<b>Alberta</b>	<b>British Columbia</b>	<b>Ontario TWAEV</b>	<b>Quebec</b>
Aluminum cobalt lithium nickel oxide 193214-24-3	TWA: 0.02 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup>
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
Aluminum 7429-90-5	TWA: 10 mg/m <sup>3</sup>	TWA: 1.0 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 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**

If splashes are likely to occur, wear safety glasses with side-shields.

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved 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. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Physical state	Solid
Appearance	Solid
Odor	No information available
Color	No information available
Odor Threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	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		None known	
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/water	0		
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	Strong acids. Strong bases. Strong oxidizing agents.
Hazardous Decomposition Products	Carbon oxides.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

<b>Product Information</b>	Product does not present an acute toxicity hazard based on known or supplied information: In case of rupture:
<b>Inhalation</b>	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). Irritating to eyes.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Redness. May cause redness and tearing of the eyes.

### Numerical measures of toxicity

#### Acute Toxicity

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

<b>ATEmix (oral)</b>	707.50 mg/kg
<b>ATEmix (dermal)</b>	15,000.00 mg/kg

**Unknown acute toxicity** 106 % of the mixture consists of ingredient(s) of unknown toxicity  
 72 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 104 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 106 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 106 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 106 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite	-	-	> 2000 mg/m <sup>3</sup> ( Rat ) 4 h
Iron	= 30 g/kg ( Rat )	-	-

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

<b>Skin corrosion/irritation</b>	Classification based on data available for ingredients. Irritating to skin.
<b>Serious eye damage/eye irritation</b>	Classification based on data available for ingredients. Causes serious eye irritation.
<b>Respiratory or skin sensitization</b>	No information available.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	No information available.

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

Chemical name	ACGIH	IARC	NTP	OSHA

Aluminum cobalt lithium nickel oxide 193214-24-3	A3	Group 2B Group 1	Reasonably Anticipated Known	X
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**Legend****ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

**NTP (National Toxicology Program)**

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

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

X - Present

<b>Reproductive toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	No information available.

## 12. ECOLOGICAL INFORMATION

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

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Graphite	-	96h LC50: > 100 mg/L (Danio rerio)	-	-
Iron	-	96h LC50: = 13.6 mg/L (Morone saxatilis)	-	-
Copper	72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: < 0.3 mg/L (Pimephales promelas)	-	48h EC50: = 0.03 mg/L

<b>Persistence and Degradability</b>	No information available.
<b>Bioaccumulation</b>	There is no data for this product.
<b>Mobility</b>	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 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
Aluminum cobalt lithium nickel oxide 193214-24-3	Toxic
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  
**Emergency Response Guide Number** 147

**TDG** Not regulated

**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

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** 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.  
**KECL** Contact supplier for inventory compliance status.  
**PICCS** Contact supplier for inventory compliance status.  
**AICS** Contact supplier for inventory compliance status.

#### Legend

**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.	Weight-%	SARA 313 - Threshold Values %
Aluminum cobalt lithium nickel oxide - 193214-24-3	193214-24-3	41	0.1
Copper - 7440-50-8	7440-50-8	7	1.0
Aluminum - 7429-90-5	7429-90-5	5	1.0

#### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

#### **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
Aluminum cobalt lithium nickel oxide 193214-24-3		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
Aluminum cobalt lithium nickel oxide - 193214-24-3	carcinogen, 5/7/2004

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

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

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Aluminum cobalt lithium nickel oxide 193214-24-3	X		X	X	X
Graphite 7782-42-5	X	X	X		
Copper 7440-50-8	X	X	X	X	X
Aluminum 7429-90-5	X	X	X	X	
Phosphate(1-), hexafluoro-, lithium 21324-40-3	X				

**16. OTHER INFORMATION**

<b>NFPA</b>	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties - Personal Protection X
<b>HMIS</b>	Health hazards 0	Flammability 0	Physical hazards 0	

Prepared By Product Stewardship  
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Latham, NY 12110  
1-800-572-6501

Revision Date 27-Nov-2019

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**

# Product Information Sheet

## Panasonic Batteries

Panasonic Industrial Devices Sales Company of America  
A Division Panasonic Corporation of North America  
1701 Golf Road Suite 3-1100  
Rolling Meadows, IL 60008  
Toll Free: 877-726-2228  
Fax: 847-468-5750  
Internet: [na.industrial.panasonic.com/products/batteries](http://na.industrial.panasonic.com/products/batteries)  
e-mail: [oembatteries@us.panasonic.com](mailto:oembatteries@us.panasonic.com)

**Product:** Manganese Lithium (ML Type) Lithium Batteries  
**Applicable models/sizes:** All ML type

**Revision:** January 1, 2020

**The batteries referenced herein are exempt articles and are not subject to the OSHA Hazard Communication Standard requirement. This sheet is provided as a service to our customers.**

## SDS

Safety Data Sheets (SDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

*Because all of our batteries are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard; hence a SDS is not required.*

**The following components are found in a Panasonic Manganese (ML) Lithium battery:**

Cell Components	Material	CAS #
Positive Electrode	Lithium Manganese Oxide	12057-17-9
Negative Electrode	Aluminum	7429-90-5
	Lithium	7439-93-2
Electrolyte	1,2-Dimethoxyethane	110-71-4
	Organic Electrolyte	-----

## DISPOSAL

These batteries contain so little lithium that they are never defined by the federal government as a reactive hazardous waste and are safe for disposal in the normal municipal waste stream. Check your local area for recycling options.

## TRANSPORTATION

All Panasonic lithium batteries are not subject to the requirements of the Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.

Effective January 1, 2019 all Panasonic lithium batteries can be shipped by air in accordance with International Civil Aviation Organization (ICAO), 2019-2020 edition, Section II or Section 1B or International Air Transport Association (IATA) 61th edition, Section II or Section 1B Packing Instructions (PI) 968 (Batteries), PI 969 (Batteries, packed with equipment) and PI 970 (Batteries, contained in equipment) as appropriate

All Panasonic lithium batteries are regulated by the International Maritime Organization (IMO), 2018, 39<sup>th</sup> amendment, under Special Provisions 188 and 230.

All Panasonic lithium batteries are regulated by the ADR, 2019-2020 Edition under SP 188 and the TDG under SP 34

**Notice:** The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Panasonic Industrial Company makes no warranty expressed or implied.

All Panasonic lithium cells are tested and comply with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3.

If you build any of our lithium cells into a battery pack, you must also assure that they are tested in accordance with the UN Model Regulations, Manual of Test and Criteria. Part III, subsection 38.3, 6<sup>th</sup> Revised Edition, Amendment 1.

If you plan on transporting any untested prototype battery packs contact your Panasonic Sales Representative for regulatory information. Check with your air carrier before shipping. Many air carriers have additional requirements.

### **First Aid**

If you get electrolyte in your eyes, flush with water for 15 minutes without rubbing and immediately contact a physician. If you get electrolyte on your skin wash the area immediately with soap and water. If irritation continues, contact a physician. If a battery is ingested, call the Rocky Mountain Poison and Drug Center at 800-222-1222 or your local poison center immediately. Lithium coin batteries lodged in the esophagus should be removed immediately. Leakage, chemical burns and perforation can occur within hours of ingestion.

### **General Recommendations**

CAUTION: Risk of fire, explosion and burns. Do not recharge, crush, heat above 212°F (100°C) or incinerate.

### **Fire Safety**

In case of fire, you can use a Class "D" fire extinguisher or other smothering agent such as Lith-X, copper powder or dry sand. If you use water, use enough to smother the fire. Cooling the exterior of the batteries will help prevent rupturing. Fire fighters should use self-contained breathing apparatus. Detailed information on fighting a lithium metal battery fire can be found in Guide 138 (Substances – Water – Reactive) of the US DOT Emergency Response Guide.

# Product Information Sheet

## Panasonic Batteries

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**Product:** Manganese Dioxide (CR Type) Lithium Batteries  
**Applicable models/sizes:** All CR type coin batteries

**Revision:** January 1, 2020

**The batteries referenced herein are exempt articles and are not subject to the OSHA Hazard Communication Standard requirement. This sheet is provided as a service to our customers.**

## SDS

Safety Data Sheets (SDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

*Because all of our batteries are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard; hence a SDS is not required.*

### The following components are found in a Panasonic Manganese Dioxide (CR) Lithium battery:

Coin Cell Components	Material	Formula	
Positive Electrode	Manganese Dioxide	MnO <sub>2</sub>	1313-13-9
Negative Electrode	Lithium	Li	7439-93-2
Electrolyte	Propylene Carbonate-Solvent	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	108-32-7
	1,2 Dimethoxyethane-Solvent	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	110-71-4
	Lithium Perchlorate-Salt	LiClO <sub>4</sub>	7791-03-9

## DISPOSAL

Lithium batteries are neither specifically listed nor exempted from the Federal Environmental Protection Agency (EPA) hazardous waste regulations as promulgated by the Resource Conservation and Recovery Act (RCRA). The only metal of possible concern in a lithium battery is lithium that is not a listed or characteristic toxic hazardous waste. Waste lithium batteries can be considered a reactive hazardous waste if there is a significant amount of unreacted, or unconsumed lithium remaining in the spent battery. The key to disposing of a lithium battery as a non-hazardous waste is to guarantee that it is fully or mostly discharged. Once it is discharged it can be disposed of as non-hazardous waste. You can dispose of a fully charged or partially discharged lithium battery as a hazardous waste after they are first neutralized through an approved secondary treatment. The need for a secondary treatment prior to disposal is a requirement of the U.S. Land Ban Restrictions of the Hazardous and Solid Waste Amendments of 1984. A secondary treatment center can only receive these batteries as manifested hazardous waste. The waste code for charged lithium

batteries is D003, reactive. **In either case, button cell batteries contain so little lithium that they never qualify as a reactive hazardous waste. These batteries are safe for disposal in the normal municipal waste stream.**

Disposal of large quantities of undischarged lithium batteries should be performed by permitted, professional disposal firms knowledgeable in Federal, State and local hazardous materials and hazardous waste transportation and disposal requirements. As always, households are exempt from the RCRA hazardous waste guidelines.

**Notice:** The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Panasonic Industrial Company makes no warranty expressed or implied.

In California, packages that contain CR lithium coin cells and the Owners/Operating Instructions of products that contain CR lithium coin cells must include the following statement: "Perchlorate Material – special handling may apply, See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)".

## **TRANSPORTATION**

All Panasonic lithium batteries are not subject to the requirements of the Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.

Effective January 1, 2019 all Panasonic lithium batteries can be shipped by air in accordance with International Civil Aviation Organization (ICAO), 2019-2020 edition, Section II or Section 1B or International Air Transport Association (IATA) 61th edition, Section II or Section 1B Packing Instructions (PI) 968 (Batteries), PI 969 (Batteries, packed with equipment) and PI 970 (Batteries, contained in equipment) as appropriate

All Panasonic lithium batteries are regulated by the International Maritime Organization (IMO), 2018, 39<sup>th</sup> amendment, under Special Provisions 188 and 230.

All Panasonic lithium batteries are regulated by the ADR, 2019-2020 Edition under SP 188 and the TDG under SP 34

All Panasonic lithium cells are tested and comply with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3.

If you build any of our lithium cells into a battery pack, you must also assure that they are tested in accordance with the UN Model Regulations, Manual of Test and Criteria. Part III, subsection 38.3, 6<sup>th</sup> Revised Edition, Amendment 1.

If you plan on transporting any untested prototype battery packs contact your Panasonic Sales Representative for regulatory information. Check with your air carrier before shipping. Many air carriers have additional requirements.

## **First Aid**

If you get electrolyte in your eyes, flush with water for 15 minutes without rubbing and immediately contact a physician. If you get electrolyte on your skin wash the area immediately with soap and water. If irritation continues, contact a physician. If a battery is ingested, call the Rocky Mountain Poison and Drug Center at 800-498-8666 for the US and Canada and 303-389-1300 internationally or your local poison center immediately. Lithium coin batteries lodged in the esophagus should be removed immediately. Leakage, chemical burns and perforation can occur within hours of ingestion.

## **General Recommendations**

**CAUTION:** Risk of fire, explosion and burns. Do not recharge, crush, heat above 212<sup>o</sup>F (100<sup>o</sup>C) or incinerate.

## **Fire Safety**

In case of fire, you can use a Class "D" fire extinguisher or other smothering agent such as Lith-X, copper powder or dry sand. If you use water, use enough to smother the fire. Cooling the exterior of the batteries will help prevent rupturing. Fire fighters should use self-contained breathing apparatus. Detailed information on fighting a lithium metal battery fire can be found in Guide 138 (Substances – Water – Reactive) of the US DOT Emergency Response Guide.