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	<b>Cartridge Assy Two Stage Clear_CRF950Z</b>	Issuing date : 25/09/2013
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## SECTION: 1. Product and company identification

### 1.1.Product identifier

Trade name/designation : Cartridge Assy Two Stage Clear\_CRF950Z

### 1.2.Relevant identified uses of the substance or mixture and uses advised against

Recommended uses and restrictions : Filter material/medium

### 1.3.Details of the supplier of the safety data sheet

Company: : Kaz USA, Inc.  
250 Turnpike Road  
Telephone: +508 490 7000  
Fax: +508 460 8056  
E-mail: rkasbekar@kaz.com

### 1.4.Emergency telephone number

Emergency telephone : 800-255-3924 US Callers or  
813-979-0626 International Callers  
CHEMTEL CONTRACT # MIS0002655

## SECTION: 2. Hazards identification

### 2.1.Classification of the substance or mixture

OSHA Regulatory Status : This material is classified as not hazardous under OSHA regulations.

### 2.2.Label elements

Signal word (GHS-US) : Not applicable  
Hazard statements (GHS-US) : Article: Not applicable  
Precautionary statements (GHS-US) : Article: Not applicable

### 2.3.Other hazards

Other hazards which do not result in classification : Article  
Substances are only released upon destruction of the system. (dust)  
Inhalation of dust may cause irritation of the respiratory system.  
Contact with dust can cause mechanical irritation or drying of the skin.

## SECTION: 3. Composition/information on ingredients

Substance name	CAS No	%
Carbon	7440-44-0	52
Copolymer of acrylic acid with Divinylbenzene, sodium salt	009052-45-3	48

## SECTION: 4. First aid measures

### 4.1.Description of first aid measures

Inhalation : In case of air intake:  
If inhaled, remove to fresh air.  
When in doubt or if symptoms are observed, get medical advice.

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- Skin contact : In case of skin contact  
Wash with plenty of soap and water.  
When in doubt or if symptoms are observed, get medical advice.
- Eye contact : In case of eye contact  
After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.  
When in doubt or if symptoms are observed, get medical advice.
- Ingestion : In case of ingestion  
Drink 1 or 2 glasses of water.  
Get medical advice/ attention.

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

- Inhalation : Health injuries are not known or expected under normal use. Inhalation of dust may cause irritation of the respiratory system.
- Skin contact : Health injuries are not known or expected under normal use. Contact with dust can cause mechanical irritation or drying of the skin.
- Eye contact : Health injuries are not known or expected under normal use. Dust contact with the eyes can lead to mechanical irritation.
- Symptoms/injuries after ingestion : Health injuries are not known or expected under normal use.

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

no data available

**SECTION: 5. Firefighting measures**

**5.1. Extinguishing media**

- Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Extinguishing media which shall not be used for safety reasons : Strong water jet

**5.2. Special hazards arising from the substance or mixture**

- Fire hazard : Combustible
- Specific hazards : Burning produces noxious and toxic fumes.  
Hazardous decomposition products:  
Smoke  
Do not allow run-off from fire-fighting to enter drains or water courses. Dispose according to legislation.

**5.3. Advice for firefighters**

- Advice for firefighters : Use personal protective equipment as required.  
In case of fire: Wear self-contained breathing apparatus.  
Evacuate area.

**SECTION: 6. Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

- For non-emergency personnel : Use personal protective equipment as required.  
See also section 8  
Avoid release to the environment
- For emergency responders : Only qualified personnel equipped with suitable protective equipment may intervene.

**6.2. Methods and material for containment and cleaning up**

- Spill or leak statements by chemical : Use appropriate personal protection equipment (PPE).  
Carefully shovel or sweep up spilled material and place in suitable container.

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## SECTION: 7. Handling and storage

### 7.1. Precautions for safe handling

- Handling : Provide adequate information, instruction and training for operators.  
Do not open container by force.  
Use personal protective equipment as required.  
See also section 8
- Hygiene measures : Keep good industrial hygiene.  
Wash hands and face before breaks and immediately after handling of the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep in a cool, well-ventilated place.

## SECTION: 8. Exposure controls/personal protection

### 8.1. Exposure guidelines

Cartridge Assy Two Stage Clear_CRF950Z		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	No data available

### 8.2. Engineering controls

- Engineering control measures : Not required under normal use.
- Environmental exposure controls : Should not be released into the environment.  
Comply with applicable environmental protection legislation.

### 8.3. Personal protective equipment (PPE)

- Respiratory protection : Not required under normal use.  
Breathing apparatus only if aerosol or dust is formed.
- Hand protection : Not required under normal use. The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal protection), and the instructions/specification of the supplier of gloves. Insulating protective gloves
- Eye protection : Not required under normal use. In case of dust production: protective goggles
- Skin and body protection : Not required under normal use.
- Thermal hazard protection : Not required under normal use.

## SECTION: 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

- Appearance : Article : Plastic cover with filter
- Color : No data available
- Odor : None.
- Odor threshold (ppm) : Not applicable
- pH : Not applicable
- Melting point : Not applicable
- Boiling point : Not applicable
- Flash point : Not applicable
- Evaporation rate : Not applicable
- Flammability (solid, gas) : Not applicable

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Explosion limits (LEL, UEL) : Not applicable  
Vapor pressure : Not applicable  
Relative vapor density at 20 °C : Not applicable  
Relative density : Not applicable  
Water solubility : Not applicable  
Log Pow : Not applicable  
Self ignition temperature : Not applicable  
Decomposition temperature : Not applicable  
Viscosity : Not applicable

### SECTION: 10. Stability and reactivity

#### **10.1.Reactivity**

Reactivity : No data available

#### **10.2.Chemical stability**

Stability : The product is stable under storage at normal ambient temperatures.

#### **10.3.Possibility of hazardous reactions**

Hazardous reactions : None under normal processing.

#### **10.4.Conditions to avoid**

Conditions to avoid : None under normal processing.

#### **10.5.Incompatible materials**

Incompatible materials : None under normal processing.

#### **10.6.Hazardous decomposition products**

Hazardous decomposition products : None known.

### SECTION: 11. Toxicological information

#### **11.1.Information on toxicological effects**

Acute toxicity : Not classified

#### **Carbon (7440-44-0)**

LD50 oral rat	> 10000 mg/kg
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Irritation : Not classified  
pH: Not applicable

Corrosivity : Not classified  
pH: Not applicable

Sensitisation : Not classified

Repeated dose toxicity : Not classified

Carcinogenicity : Not classified

Mutagenicity : Not classified

Toxicity for reproduction : Not classified

Further information : Symptoms related to the physical, chemical and toxicological characteristics see section 4.2.

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## SECTION 12: Ecological information

### **12.1.Toxicity**

Ecotoxicity effects : Ecological injuries are not known or expected under normal use.

### **12.2.Persistence and degradability**

Persistence and degradability : No data available

### **12.3.Bioaccumulative potential**

Bioaccumulation : No data available

Log Pow : Not applicable

### **12.4.Mobility in soil**

Mobility : No data available

### **12.5.Other adverse effects**

Further information : No data available

## SECTION 13: Disposal considerations

### **13.1.Waste treatment methods**

Waste from residues / unused products : Do not allow to enter into surface water or drains.  
Dispose according to legislation.

Contaminated packaging : Dispose according to legislation.

## SECTION 14: Transport information

### **14.1. Basic shipping description**

#### **DOT**

DOT Proper Shipping Name : Not applicable

### **14.2 Additional information**

#### **IMDG**

IMDG : Not applicable

Packing group : Not applicable

#### **ICAO/IATA**

ICAO/IATA : Not applicable

Packing group : Not applicable

## SECTION: 15. Regulatory information

### **15.1. US Federal regulations**

#### **Carbon (7440-44-0)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### **15.2. International regulations**

#### **15.2.1. CANADA**

#### **Carbon (7440-44-0)**

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification Uncontrolled product according to WHMIS classification criteria

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### 15.2.2. National regulations

#### Carbon (7440-44-0)

Listed on the AICS (the Australian Inventory of Chemical Substances)  
Listed on Inventory of Existing Chemical Substances (IECSC)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.  
Listed on the Korean ECL (Existing Chemical List) inventory.  
Listed on New Zealand - Inventory of Chemicals (NZIoC)  
Listed on Inventory of Chemicals and Chemical Substances (PICCS)

### 15.3. US State regulations

#### Carbon (7440-44-0)

U.S. - Idaho - Occupational Exposure Limits - TWAs

## SECTION: 16. Other information

Issuing date : 25/09/2013  
Supersedes :  
Sources of key data used to compile the Safety Data Sheet : Supplier information.

#### NFPA-code

#### HMIS III Rating

Health : 0 Minimal Hazard - No significant risk to health  
Flammability : 1 Slight Hazard  
Physical : 0 Minimal Hazard

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**DISCLAIMER OF LIABILITY** The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

# Product Information Sheet

## Panasonic Batteries

Panasonic Industrial Company  
A Division Panasonic Corporation of North America  
5201 Tollview Drive, 1F-3  
Rolling Meadows, IL 60008  
Toll Free: 877-726-2228  
Fax: 847-637-4660  
Internet: [www.panasonic.com/industrial/batteries-oem](http://www.panasonic.com/industrial/batteries-oem)  
e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

**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.

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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.

# Product Information Sheet

## Panasonic Batteries

Panasonic Industrial Company  
A Division Panasonic Corporation of North America  
5201 Tollview Drive, 1F-3  
Rolling Meadows, IL 60008  
Toll Free: 877-726-2228  
Fax: 847-637-4660  
Internet: [www.panasonic.com/industrial/batteries-oem](http://www.panasonic.com/industrial/batteries-oem)  
e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

**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**

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

**Revision:** January 1, 2020

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

Coin Cell Components	Material	Formula	
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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
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## DISPOSAL

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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.**

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## **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**

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

**Revision:** January 1, 2020

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### 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

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## **TRANSPORTATION**

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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**

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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.

# Product Information Sheet

## Panasonic Batteries

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A Division Panasonic Corporation of North America  
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e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

**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

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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.

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## **First Aid**

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## **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**

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e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

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

**Revision:** January 1, 2020

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### 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

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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.**

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## **TRANSPORTATION**

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## **First Aid**

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## **General Recommendations**

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## **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

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

**Revision:** January 1, 2020

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### 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
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## DISPOSAL

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**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

Panasonic Industrial Company  
A Division Panasonic Corporation of North America  
5201 Tollview Drive, 1F-3  
Rolling Meadows, IL 60008  
Toll Free: 877-726-2228  
Fax: 847-637-4660  
Internet: [www.panasonic.com/industrial/batteries-oem](http://www.panasonic.com/industrial/batteries-oem)  
e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

**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.

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

**Revision:** January 1, 2020

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Coin Cell Components	Material	Formula	
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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
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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.**

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## **General Recommendations**

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## **Fire Safety**

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

**Revision:** January 1, 2020

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### 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
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**Revision:** January 1, 2020

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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**

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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.

# Product Information Sheet

## Panasonic Batteries

Panasonic Industrial Company  
A Division Panasonic Corporation of North America  
5201 Tollview Drive, 1F-3  
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e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

**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.

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## **General Recommendations**

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

**Revision:** January 1, 2020

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### 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
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	Lithium Perchlorate-Salt	LiClO <sub>4</sub>	7791-03-9

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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.**

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## **General Recommendations**

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## **Fire Safety**

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

**Revision:** January 1, 2020

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### 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

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## 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.

# Product Information Sheet

## Panasonic Batteries

Panasonic Industrial Company  
A Division Panasonic Corporation of North America  
5201 Tollview Drive, 1F-3  
Rolling Meadows, IL 60008  
Toll Free: 877-726-2228  
Fax: 847-637-4660  
Internet: [www.panasonic.com/industrial/batteries-oem](http://www.panasonic.com/industrial/batteries-oem)  
e-mail: [ombatteries@panasonic.com](mailto:ombatteries@panasonic.com)

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

**Revision:** January 1, 2020

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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

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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.**

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