

# Product Information Sheet

## Panasonic Batteries

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**Product:** Carbon Monofluoride  
(BR type) Lithium  
Batteries

**Applicable models/sizes:** All BR type  
coin and cylindrical cells.

**Revision:** A; Dated 6/2/99

**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.**

## MSDS

Material Safety Data Sheets (MSDS) 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 MSDS is not required.*

**The following components are found in a Panasonic Carbon Monofluoride (BR) Lithium Battery:**

Cylindrical Cell Components	Material	Formula
Positive Electrode	Carbon monofluoride	(CF) <sub>n</sub>
Negative Electrode	Lithium	Li
Electrolyte	γ-Butyrolactone -Solvent	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>
	Lithium Tetrafluoroborate	LiBF <sub>4</sub>
Coin Cell Components	Material	Formula
Positive Electrode	Carbon monofluoride	(CF) <sub>n</sub>
Negative Electrode	Lithium	Li
Electrolyte	γ-Butyrolactone -Solvent	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>
	1, 2 Dimethoxyethane-Solvent	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>
	Lithium Tetrafluoroborate	LiBF <sub>4</sub>

## 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.

**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.

(continued)

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.

## **TRANSPORTATION**

All Panasonic lithium batteries are not subject to the requirements of the U.S. Department of Transportation (DOT) Subchapter C, Hazardous Material Regulations because each of our batteries meets the exceptions under 173.185 (b). The only exception to this is our BR-C battery that contains 1.3 grams of lithium per cell and is not subject to the regulations because it meets the requirements of 173.185 (c). (i.e., passes the UN T1 to T6 tests)

They are considered to be non-dangerous by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) because they meet all the requirements of Special Provision "A45" as described by both organizations.

They are considered to be non-dangerous by the International Maritime Dangerous Goods regulations (IMDG) because they meet the requirements of UN 3090.

The only requirement for shipping these batteries, in all modes of transportation, are that they must be separated to prevent short-circuits and to prevent movement that could lead to short-circuits. They must also be packed in strong packaging that can withstand the rigors normal to transportation.

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