

OVERVIEW

The lithium thionyl chloride batteries included in Badger Meter products provide very high energy density and excellent durability. These batteries have received component recognition through Underwriter's Laboratory (UL Standard 1642). However, UL component recognition does not mean the batteries are immune from abuse or misuse. While generally safe, lithium thionyl chloride batteries can pose a risk if not handled properly. Guidelines for the proper handling and recycling of the batteries are outlined in this document.

BATTERY CONTENTS & MATERIALS

The basic battery contents are:

Lithium metal: A highly reactive alkali metal. May burn in moist air. Reacts violently with water, alcohol, acids and other oxidants. May spontaneously ignite in moist air.

Thionyl chloride: An inorganic liquid that fumes in air to form hydrochloric acid, sulfuric acid and sulfur dioxide gas—all highly acidic and corrosive fumes. Reacts violently with water.

Inerts: Varying amounts of carbon, nickel strips, grids and glass paper.

SAFETY DATA SHEET

Under Federal OSHA regulations, batteries sealed inside a finished product are classified as a manufactured article and do not require a Safety Data Sheet (SDS).

An SDS for batteries used in Badger Meter products can be obtained by contacting Badger Meter.

BATTERY DISPOSAL

To meet environmental safety and compliance with legal requirements, batteries must be disposed of responsibly:

- Dispose of batteries in accordance with all applicable Federal, State and Local regulations. Regulations may vary by region, so consult your local waste management authority for specific guidelines.
- Before disposal, cover or tape all exposed terminals (leads) with non-conductive material (example, electrical tape) to prevent accidental short-circuiting, which could lead to fire or personal injury.
- It is the sole responsibility of the user to handle and dispose of batteries safely. Improper disposal may pose environmental hazards and create safety hazards. Badger Meter is not liable for improper handling, storage, transportation, or storage of batteries while the Customer is in possession of or holds title to the product.

STORAGE AND HANDLING

Protect battery packs and products with lithium batteries against any of the following actions, which can cause the batteries to leak, vent, rupture, overheat or explode.

With improper handling, storage or use, lithium thionyl chloride batteries may pose a serious safety hazard in the rare case of a vent or rupture.

WARNING

FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN SERIOUS INJURY.

Protect Against These Actions

Short circuit
Charge/recharge (Batteries are non-rechargeable)
Disassembly or removal from enclosure with hardened epoxy
Backward connection
Fire/incineration
Crush/puncture
Exposure to water
Force discharge (Do not drive voltage below 0.0 volts)

BATTERY VENTING, RUPTURE, FIRE OR EXPLOSION

Skin or body contact with battery contents should be treated as an acid burn.

- Flush with water continuously for 15 minutes.
- Contact a physician.

Clean-up and disposal may require an acid-type gas mask or respirator along with a face shield, acid-resistant gloves, boots and apron.

- Ventilate area.
- Do not breathe vapors. Use a Class D fire extinguisher to control fire, and sodium bicarbonate (powder) to neutralize acidic liquids.
- Do not extinguish fire with water or water solutions.

PRODUCT RETURNS FOR WARRANTY EVALUATION

Shipment of product(s) that contain batteries returned to Badger Meter must comply with the requirements of the U.S. Department of Transportation hazardous materials packaging and labeling requirements provided in 49 CFR 173.185 ^[1] and 49 CFR 173.24 ^[2]. All batteries must be packaged in a manner that prevents short circuits under conditions normally encountered during transportation. Returning the Product with the battery still installed is the easiest way to adhere to these guidelines.

The shipper is responsible for selecting a transportation mode/carrier, preparing the Product for shipment, and insuring the Product until it is received by Badger Meter. The shipper is also responsible for all shipment costs and any other costs associated with transportation and storage of the shipment until it reaches our Badger Meter facility.

Title does not transfer until the Product is received at the Badger Meter shipping dock.



Notice: Product cannot ship via air carrier. Any shipment containing lithium batteries is subject to U.S. Department of Transportation Hazardous Materials (HM) regulations. Both the shipper and the carrier bear responsibility for adhering to these guidelines. See the Federal Motor Carrier Safety Administration Web site for details (www.fmcsa.dot.gov).

Refer to applicable international shipping requirements, as needed.

^[1] <https://www.govinfo.gov/app/details/CFR-2024-title49-vol2/CFR-2024-title49-vol2-sec173-185>

^[2] <https://www.govinfo.gov/app/details/CFR-2024-title49-vol2/CFR-2024-title49-vol2-sec173-24>