

Important Information for Users and Handlers of Badger Meter, Inc. Batteries

Badger Meter batteries contain lithium thionyl chloride (very high energy density) cells. Under improper handling, storage or use - they may pose a serious safety hazard.

Higher energy batteries contain more energy than conventional batteries. Because they are made from different components, they may release more hazardous materials in the rare case of a vent or rupture.

All batteries, including zinc-carbon, alkaline, lead-acid or nickel-cadmium, can present a hazard if misused or abused. The guidelines outlined in this publication are recommendations from the battery manufacturers and apply to all batteries.

This safety guide cannot address all customer handling and storage. Please contact Badger Meter, Inc. regarding any questions about this guide.

U.L. COMPONENT RECOGNITION

The following Badger Meter batteries have received component recognition through Underwriter's Laboratory (U.L. File MH12568): Badger Meter, Inc. ER6C.

Component recognition by U.L. does not mean that the batteries are immune from abuse or misuse by the end-user.

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 which 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.

Under Federal OSHA regulations, Badger Meter batteries are classed as a manufactured article and do not require a Material Safety Data Sheet (MSDS). The MSDS for lithium may be obtained from Foote Mineral of Exton, PA., and for thionyl chloride from Hooker Chemical of Niagara Falls, NY.

⚠ WARNING

Any of the following may cause the batteries to leak, vent, rupture or explode.

DO NOT



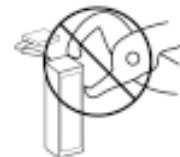
Short Circuit



Fire (Do Not Incinerate)



Charge (Recharge); the battery is not rechargeable



Crush or Puncture

Disassemble



Connect Backwards



Expose battery contents to water

Force discharge (drive voltage below 0.0 volts)

Failure to follow these warnings could result in serious injury.



Lithium Thionyl Chloride Safety Guide

IMPORTANT INFORMATION FOR USERS AND HANDLERS

AA Batteries: Too many possibilities exist to issue a general guideline. At all times, Badger Meter batteries must be stored to guard against thermal extremes, charging and short circuits.

Handling: Inadvertent short circuit of Badger Meter batteries may cause the unit to leak, vent, rupture or overheat.

Batteries should be stored on nonconductive shelves, oriented in the same direction, preferably in original packing or equivalent.

Do not stack or allow batteries to touch one another in bins or boxes.

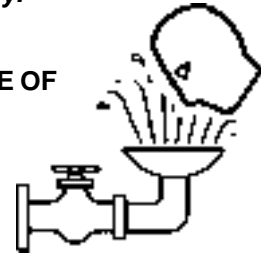
Personnel assembling batteries for installation should not wear conductive jewelry and should wear eye protection.

Disposal: Local regulations vary. Federal regulations allow up to 100 kg./month of lithium thionyl chloride batteries to be disposed of in common landfill. All leads (the terminals) should be taped to prevent short circuit. The user is responsible for safe disposal. Contact Badger Meter if you wish to contract for battery disposal.

This guide cannot address all customer handling and storage. Please contact Badger Meter, Inc. regarding any questions about this guide.

Failure to follow these guidelines could result in serious injury.

WHAT TO DO IN CASE OF BATTERY VENTING, RUPTURE, FIRE OR EXPLOSION



Skin or body contact with battery contents should be treated as an acid burn. Flush with water for 15 minutes. Contact a physician. Ventilate area. Do not breathe vapors. Use Lithex to control fire and sodium bicarbonate (powder) to neutralize acidic liquids. Do not extinguish fire with water or water solutions.

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

Lithium Battery Return Policy

⚠ WARNING

The following procedure must be adhere to.

Badger Meter will accept return of used lithium batteries from customers under the following conditions:

1. Badger's preference is to receive the batteries in the product, rather than removed from the product, since danger for problems arises with respect to improper removal.
2. Shipment of batteries returned to Badger Meter must comply with the requirements of 49 CFR 173.185 "Lithium Batteries and Cells." All batteries must be packaged in such a manner that prevents short circuits under conditions normally encountered during transportation. Battery ends need to be covered to prevent them from touching one another. This can be accomplished by using duct tape on individual batteries, or by taping the ends of wire terminals. Additionally, batteries should be placed in sealed plastic bags, and packaged with vermiculite to prevent accidental contact. The outer packaging must be in compliance with 49 CFR 173.24 and 173.24a.
3. The customer shall be solely responsible for selecting a mode of transport, for preparing the product for shipment, for the expenses of shipment, and for insuring the product until it is received at Badger's dock.
4. Title shall not transfer until the product is received at Badger's dock.
5. All responsibility and all liability for the product belongs to the customer until it is received at Badger's dock.



Please see our website at
www.badgermeter.com
for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding bid obligation exists.



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