



### **Why regulate mercury-containing devices?**

Waste mercury-containing devices are commonly generated by a wide variety of generator types including households, medical clinics, hospitals, the electronics industry, dairies, small businesses, pipeline monitoring companies, and other industrial operations. Such devices include mercury thermostats, thermometers, manometers, barometers, blood pressure cuffs, electrical switches and relays, gauges and flow regulators, pyrometers, thermocouples and vacuum pumps.

Improper disposal of mercury can impact state water supplies or be released into the air as gas emissions. Mercury is among a group of pollutants that do not break down or go away. When deposited into the environment, mercury can be converted into methylmercury, which builds up in the tissues of fish, wildlife and humans. Mercury is a potent neurotoxin that interferes with the way nerve cells function and can cause damage to the brain, kidneys and lungs.

### **How are mercury-containing devices regulated?**

Household wastes are not regulated as hazardous waste in Colorado, so residential wastes may be disposed of through a local household hazardous waste collection event or facility, or if these options are not available - disposed of in a municipal solid waste landfill. Disposal of mercury-containing devices in a solid waste landfill is strongly discouraged, however.

While residential consumers are exempt from the Colorado Hazardous Waste Regulations, businesses, medical facilities, schools and government agencies must follow State requirements regarding proper management and disposal of hazardous wastes that they generate.

### **How should mercury-containing devices determined to be hazardous waste be managed?**

Until a nationwide, long-term solution is found for managing mercury, the preferred alternative is to send mercury-containing devices and other mercury-contaminated waste to a facility that recycles the waste by retorting (distilling) it. Alternatively, a generator must ensure delivery of the mercury-containing devices or waste to a permitted hazardous waste treatment or disposal facility.

Waste mercury-containing devices can either be man-

aged in full compliance with the Colorado Hazardous Waste Regulations, or they can be managed in compliance with the reduced requirements of the Universal Waste Rule in Part 273. The "Guide to Generator Requirements of the Colorado Hazardous Waste Regulations" describes the requirements applicable to each generator category. The Guide is available on the Division website or by calling the Customer Technical Assistance line.

The Universal Waste Rule provides an alternative set of reduced management standards for mercury-containing devices that the generator can follow instead of the full hazardous waste requirements. This rule was designed to reduce the regulatory burden on non-residential entities that generate these wastes and to encourage recycling, while at the same time reducing the amount of hazardous waste items illegally sent to municipal solid waste landfills.

### **What are Universal Wastes?**

The Universal Waste Rule [Colorado Hazardous Waste Regulations 6 CCR 1007-3 Part 273] includes certain hazardous wastes that are commonly generated by very small to very large non-residential sources such as businesses, government agencies, and schools. Universal wastes are subject to wide spread use, which makes disposal of these hazardous wastes difficult to control.

Materials included as universal wastes are regulated under the Resource Conservation and Recovery Act (RCRA) and have been required to be handled as hazardous wastes since the early 1980s. In the past, if these wastes were determined to be a hazardous waste, small and large quantity generators of hazardous waste needed to manage them in full compliance with the hazardous waste regulations, including labeling, employee training, manifest requirements, and restrictive time limits. [6 CCR 1007-3 Parts 260-268, 99, 100]

### **Why manage mercury-containing devices as universal waste?**

Managing wastes as universal wastes is most beneficial to small and large quantity generators of hazardous waste, or conditionally exempt small quantity generators that would otherwise be small quantity generators if they did not manage some of their wastes as universal wastes. The primary benefits of choosing the reduced manage-

ment standards of the universal waste rule are that the waste does not count toward the monthly total of hazardous waste in determining generator category; the waste can be shipped without a hazardous waste manifest; the waste can be shipped by common carrier instead of a hazardous waste transporter; there are reduced notification and record-keeping requirements, and the storage time limits are less restrictive. Because universal waste does not require a hazardous waste manifest for shipment in Colorado, it is not considered hazardous waste under US Department of Transportation regulations, though other regulations may apply. State requirements for universal waste transporters are included in 6 CCR 1007-3 Part 273 Subpart D.

### **What are the requirements for universal waste management?**

#### Categories of Universal Waste Handlers

Under the Universal Waste Rule, persons who generate or accumulate waste mercury-containing devices are considered “handlers” of universal waste. [6 CCR 1007-3 Section 273.9] [Note: this definition is different from that of a **generator** of hazardous waste].

There are two categories of handlers, Small Quantity Handlers of Universal Waste and Large Quantity Handlers of Universal Waste. A small quantity handler of universal waste is one who does not accumulate more than 5,000 kilograms of universal at any one time. A large quantity handler of universal waste is a handler of universal waste who accumulates 5,000 kilograms or more of universal waste. [6 CCR 1007-3 Section 273.9]

**In the case of open-ended universal waste mercury-containing devices, a handler in either category cannot accumulate more than 35 kilograms (about 77 pounds) of elemental mercury at one time.**

The designation of small quantity or large quantity handler of universal waste has no relationship to a facility’s hazardous waste **generator** status. Thus a small quantity generator of hazardous waste may be a large quantity handler of universal waste, and a facility that is a large quantity generator of hazardous waste may be a small quantity handler of universal waste.

If, at any time during a calendar year, a facility exceeds the quantities for a small quantity handler of universal waste, they would be considered a large quantity handler until the next calendar year when they can reevaluate their status. [6 CCR 1007-3 Section 273.9]

#### Labeling

When universal waste mercury-containing devices are generated, they must be labeled as “Waste \_\_,” “Used \_\_” or “Universal Waste Mercury-containing Devices.” If the waste is placed into an accumulation container, only the container needs to be labeled, not the individual items in it. If a device is not in good condition and is leaking or shows sign that it could leak, it must be individually over-packed in a closed container that is properly labeled and capable of preventing a release of hazardous constituents to the environment under reasonably foreseeable conditions. [6 CCR 1007-3 Sections 273.13, 273.33]

#### Accumulation of Waste

Universal waste handlers are required to manage their waste in a manner that prevents releases of the waste or waste constituents. [6 CCR 1007-3 Sections 273.13, 273.33] There is a one year accumulation time limit, and handlers must be able to demonstrate that universal waste on-site has not been accumulated for more than one year. [6 CCR 1007-3 Sections 273.15, 273.35] Although it is not required to be marked with the accumulation start date, this would be the easiest way to document that the waste is in compliance with the one year accumulation limit.

#### Shipment of Waste

A universal waste handler cannot dispose of universal waste on site without a permit, and treatment by the handler is not allowed except under limited conditions (see the section on handler treatment). Universal waste can only be shipped to another universal waste handler, a destination facility or a foreign destination. Shipment to another universal waste handler is allowed to aid in consolidation of wastes. A destination facility is a facility that is permitted to treat, dispose, or recycle the waste. [6 CCR 1007-3 Section 273.9]

Shipment of universal waste in Colorado does not require the use of the hazardous waste manifest system. Therefore, universal waste is not considered hazardous waste under US DOT regulations. Some universal wastes are regulated by the US DOT as hazardous materials because they meet criteria for one or more hazard classes, but the word “waste” may not be used in the shipping name. [6 CCR 1007-3 Section 273.52]

**Other states may have different requirements for wastes that are managed as universal waste in Colorado. The handler should always confirm the regulatory status of universal wastes in the destination state and in all intervening states the waste will travel through.**

## Notification

Small quantity handlers of universal waste are not required to notify the Division of their universal waste management activities. [6 CCR 1007-3 Section 273.12]

Large quantity handlers of universal waste are required to notify the Division of their universal waste management activities and obtain an EPA identification number. This must be done even if the facility has previously given notification and received an EPA identification number for its hazardous waste activities. The EPA identification number will remain the same.

## Employee Training

Small quantity handlers of universal waste are required to inform all employees who manage universal waste about the proper handling and emergency procedures appropriate to the types of universal waste at the facility. [6 CCR 1007-3 Section 273.16] Large quantity handlers are required to ensure that personnel are thoroughly familiar with the requirements for universal waste management and emergency response relative to their level of responsibilities in dealing with the waste. [6 CCR 1007-3 Section 273.36] This is a performance-based standard, and there are no requirements to maintain formal training records for either category.

## Spills

All handlers of universal waste are required to immediately containerize and appropriately manage any spills or residues from releases of universal wastes. [6 CCR 1007-3 Sections 273.17(a), 273.37(a)] A hazardous waste determination would need to be made on these newly generated wastes.

## Record Keeping Requirements

A small quantity handler of universal waste is not required to maintain specific records. [6 CCR 1007-3 Section 273.19] However, it is strongly advisable to keep adequate records to document waste management practices to substantiate the facility's handler status.

A large quantity handler of universal waste must keep written records for universal wastes shipped to and from its facilities. These records must be kept for at least three years and include: the types and quantities of universal waste shipped or received, the date the waste was shipped or received, and to whom the waste was shipped. [6 CCR 1007-3 Section 273.39]

Universal waste handlers that drain elemental mercury from open-ended devices must maintain documentation

of the date of accumulation, a description of each device drained, and the amount of mercury drained from each device.

## **Can a universal waste handler treat its hazardous wastes?**

Removing mercury ampules from mercury-containing devices and draining elemental mercury from open-ended mercury-containing devices are allowed by handlers of universal wastes as long as these activities are conducted in accordance with the requirements of Part 273.13 or 273.33 of the Colorado Hazardous Waste Regulations. Prior to removing the ampules or draining elemental mercury, a handler must develop and implement a written procedure detailing how to conduct these activities safely. Included in this document must be the type of equipment to be used, operation and maintenance of the equipment, and the precautions that need to be taken to protect workers. In addition, the document must include a review of the wastes that will be generated from these activities and how these will be managed. A spill kit must be readily available in case there is a spill or release.

## Removal of mercury ampules

A handler of universal waste mercury-containing devices must ensure that workers are thoroughly familiar with the procedures to safely remove mercury ampules and the precautions needed for worker safety. They must be familiar with the type of equipment to be used and how to operate and maintain it.

Handlers of universal wastes must ensure that the mercury ampules are removed from the devices in a manner that is designed to prevent the release of any universal waste or component of universal waste to the environment. Mercury-containing ampules may be removed from a device only if these activities are done over or in a containment device (e.g., a tray or pan) sufficient to collect and contain any mercury released in case of breakage or spillage. Any mercury spilled during the removal activities must be immediately transferred to a closed, non-leaking container that meets the requirements of Section 262.34 of the Colorado Hazardous Waste Regulations 6 CCR 1007-3. Ampules removed from mercury-containing devices must be packed with material adequate to prevent breakage during storage and shipment. The handler must ensure that the area in which the universal waste devices are managed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury.

## Removal of elemental mercury from open-ended devices

A handler of universal waste mercury-containing devices must ensure that workers are thoroughly familiar with the procedures to safely drain mercury from open-ended devices and the precautions needed for worker safety. They must be familiar with the type of equipment to be used and how to operate and maintain it.

Handlers of universal wastes must ensure that the elemental mercury is removed from the devices in a manner that is designed to prevent the release of any universal waste or component of universal waste to the environment. Elemental mercury may be removed from a device only if these activities are done over or in a containment device (e.g., a tray or pan) sufficient to collect and contain any mercury released in case of breakage or spillage. All mercury removed from open-ended devices or spilled during the removal activities must be immediately transferred to a closed, non-leaking container that meets the requirements of Section 262.34 of the Colorado Hazardous Waste Regulations.

A universal waste handler that drains elemental mercury from open-ended devices must maintain documentation of the date of accumulation, a description of each device drained, and the amount of mercury drained from each device. The handler must ensure that the area in which the universal waste devices are managed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury.

### **What about Conditionally Exempt Small Quantity Generators (CESQG)?**

Conditionally exempt small quantity generators are those that generate less than 100 kilograms (approximately 220 pounds) of total hazardous waste and no more than one kilogram of acutely hazardous waste per calendar month AND never accumulate more than 1000 kilograms of hazardous waste on site at one time. In Colorado, conditionally exempt generators must identify which of their wastes are hazardous wastes and must ensure that their wastes are sent to a facility that is permitted to accept it.

Conditionally exempt small quantity generators may choose to manage their mercury-containing devices as conditionally exempt wastes or as universal wastes. [6 CCR 1007-3 Section 273.8] Because of the reduced management requirements already applicable to conditionally exempt small quantity generators of hazardous waste, it is generally not to their benefit to manage their wastes as universal waste, unless they would otherwise be small quantity generators by having to include the mercury-containing devices in their monthly generation quantities. Unlike small and large quantity generators of

hazardous waste, conditionally exempt generators are not required to notify the State of their regulated waste activity or to get an EPA identification number. There is no time limit on how long they may store their hazardous waste on site as long as they don't exceed the quantity limits for conditionally exempt small quantity generators, and they may transport their hazardous waste without a hazardous waste manifest under a standard bill of lading.

Conditionally exempt generators may not dispose of their hazardous wastes on site or send them to a solid waste landfill in Colorado. These wastes must be sent to a permitted hazardous waste treatment, storage or disposal (TSD) facility, sent to a legitimate recycler of the waste, or sent to an out-of-state solid waste disposal facility that is permitted to accept conditionally exempt small quantity generator hazardous wastes.

### **For more information:**

**Colorado Department of  
Public Health & Environment**

**Hazardous Materials and  
Waste Management Division  
4300 Cherry Creek Drive South  
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Division Website [www.cdphe.state.co.us/hm/](http://www.cdphe.state.co.us/hm/)  
Regulations [www.cdphe.state.co.us/regulate.asp](http://www.cdphe.state.co.us/regulate.asp)  
E-mail [comments.hmwm@state.co.us](mailto:comments.hmwm@state.co.us)

Mercury-Free Colorado Campaign  
[www.cdphe.state.co.us/hm/mercury/](http://www.cdphe.state.co.us/hm/mercury/)

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This Compliance Bulletin is intended to provide guidance on the appropriate management of wastes based on Colorado solid and hazardous waste statutes and regulations only. The wastes described in this guidance may also be regulated under other statutes and regulations.