



## 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.

### Universal Wastes include many:

- batteries
- pesticides
- mercury-containing devices
- mercury-containing lighting wastes
- aerosol cans
- electronic devices and components

These same wastes are not regulated as hazardous wastes if generated by residential consumers. Residential wastes may be disposed of through a local household chemical waste collection event or facility, recycled, or if these options are not available, disposed of in a municipal solid waste landfill. "Household" includes single-family homes, apartments, hotels and motels, retirement homes, bunkhouses, ranger stations, crew quarters, picnic areas, campgrounds, and day-use recreation areas.

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]

The Universal Waste Rule provides an alternative set of reduced management standards 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, thus reducing a potential threat to public health and the environment.

The Colorado Hazardous Waste Regulations include the following universal wastes:

- batteries, found in many common items including electronic equipment, mobile telephones, cameras, computers, and emergency backup lighting. In general, nickel-cadmium, lithium, most button batteries and some alkaline batteries are hazardous wastes when disposed.
- agricultural pesticides that have been recalled or banned from use, are obsolete, have become damaged, or are no longer needed due to changes in cropping patterns or other factors. Many agricultural pesticides are listed hazardous wastes or exhibit one or more characteristics of hazardous waste.
- mercury-containing devices with less than 5 kg (about 11 pounds) of mercury per device, such as mercury thermostats, thermometers, blood pressure cuffs, manometers, barometers, gauges and flow regulators, electrical switches and relays, pyrometers, thermocouples and mercury-filled vacuum pumps. These devices are generated by medical clinics, hospitals, the electronics industry, small businesses, pipeline monitoring companies, and other industrial operations.
- aerosol cans containing hazardous wastes, such as paint, brake cleaner or other solvents.
- mercury-containing lighting wastes, such as fluorescent, high-pressure sodium, mercury vapor and metal halide lamps.
- electronic devices and components that fail the toxicity test for heavy metals, such as computer monitors, color televisions and circuit boards.

The hazardous waste regulations apply only to wastes that are determined to be hazardous waste, either by being a listed hazardous waste and/or by exhibiting one or more characteristics of hazardous waste as defined in State hazardous waste regulations [6 CCR 1007-3 Part 261]. It is the responsibility of the generator of the waste to determine if their wastes are hazardous wastes in order to ensure proper management and disposal. [6 CCR 1007-3 Section 262.11] Wastes from non-residential sources **that are not hazardous** may be disposed of in a properly managed municipal solid waste landfill or sent to a legitimate recycler. Landfills and recyclers may impose their own restrictions to regulate incoming wastes in accordance with local rules or

company guidelines. Consult the landfill operator or recycler regarding their requirements.

Colorado was not required under federal law to adopt the Universal Waste Rule because the new rule was less stringent than the existing requirements under RCRA. As a RCRA-authorized state, the Colorado Hazardous Waste Commission had to adopt state analogs equivalent to the regulatory requirements of the Federal Rules in order for the Universal Waste Rule to become effective in Colorado. The Colorado Hazardous Waste Commission adopted reduced management practices for these widely generated wastes under the Universal Waste Rule [6 CCR 1007-3 Part 273] for certain pesticides, mercury thermostats and batteries in 1995. Aerosol cans containing hazardous waste were added to the rule in 1996, and mercury-containing lighting wastes were added in 1999. The provision for mercury thermostats was expanded to include other mercury-containing devices, such as thermometers, in 2000. Electronic devices and components that fail the toxicity characteristic test for heavy metals were added to the universal waste rule effective July 31, 2001.

#### **Why manage a waste 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 management 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 batteries, pesticides, mercury-containing devices, aerosol cans containing hazardous wastes, mercury-containing lamps or electronic devices

and components 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 universal waste handlers, Small Quantity Handlers and Large Quantity Handlers. A small quantity handler of universal waste is one who does not accumulate more than 5,000 kilograms of total 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 total universal waste. [6 CCR 1007-3 Section 273.9] In either case, a handler 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 a universal waste is generated, it must be labeled as either "Waste (*material type*)," "Used (*material type*)" or "Universal Waste (*material type*)." For example, a used battery that is managed as a universal waste must be labeled as a "Waste Battery," "Used Battery," or "Universal Waste Battery." If the waste is placed into an accumulation container, only the accumulation container needs to be labeled as containing universal wastes, not the individual waste materials within it. If an individual waste material is not in good condition and is leaking or shows sign that it could leak, it must be individually over-packed in a closed packing container that is properly labeled and capable of preventing leakage or releases of hazardous constituents to the environment under reasonably foreseeable conditions. [6 CCR 1007-3 Sections 273.13, 273.33] If the accumulation container is not in good condition, it must be over-packed, or the wastes must be removed and put into a container that is in good condition.

##### 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, 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 using EPA Form 8700-12. [6 CCR 1007-3 Section 273.32] 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 of universal waste 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]

### 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)] The waste generated from a release of universal waste would be considered newly generated waste, and a hazardous waste determination would need to be made. If it is determined that any or all of the released material or residue is hazardous, it must be managed in accordance with the hazardous waste regulations and not the universal waste requirements. [6 CCR 1007-3 Sections 273.17(b), 273.37(b)] The handler of the universal waste at the time of the release would be the generator of the newly generated hazardous waste and must adhere to all applicable requirements of the Colorado hazardous waste regulations.

### Record Keeping Requirements

A small quantity handler of universal waste is not required to maintain records. [6 CCR 1007-3 Section 273.19] However, it is strongly advisable to keep adequate records to document waste management practices and substantiate the facility's universal waste 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] There is no requirement to maintain formal training records for either category.

Transporters of universal waste are required to keep records in accordance with US DOT requirements. A destination facility is subject to all applicable requirements of 6 CCR 1007-3 Parts 264-268, 99 & 100. If the destination facility recycles the universal waste without storing it, they need only notify the Department of their activity under 6 CCR 1007-3 Part 99 and keep records of each shipment. If the destination facility is a

Treatment Storage and Disposal Facility (TSDF), they are required to keep records in accordance with their hazardous waste permit.

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

Universal waste handlers can't dispose of universal wastes and treatment by the handler is not allowed except under limited conditions for mercury-containing devices and lamps, aerosol cans containing hazardous wastes, and electronic devices.

#### 1. Removal of electrolyte solution from battery cell

Removal of electrolyte solutions from batteries is allowed by handlers of universal waste as long as the battery cell is closed immediately after removal of the solution. The universal waste handler is considered the generator of the electrolyte and/or other solid wastes generated during this process. If the electrolyte and/or other solid wastes exhibit a characteristic of hazardous waste, it is subject to the requirements of Parts 260 through 268 and Parts 99 and 100. These materials are no longer considered universal wastes.

#### 2. Removal of mercury ampules or draining mercury-containing devices

Removing mercury ampules from mercury-containing devices or draining elemental mercury from open-ended mercury-containing devices is allowed by handlers of universal waste 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 remove the ampules or drain the mercury 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 all 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.

Handlers of universal wastes must ensure that the mercury ampules are removed or the mercury is drained from open-ended devices over or in a containment device that is designed to prevent the release of any mercury or component of universal waste to the environment. Special management procedures necessary to manage the waste properly also need to be evaluated prior to removal. 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 regulatory exposure levels for mercury. Employees must be thoroughly familiar with proper mercury handling and emergency procedures. A spill kit must be readily available in case wastes are spilled during the removal activities. 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 may accumulate up to 35 kilograms (about 77 pounds) of elemental mercury at one time.

A small or large quantity handler of universal waste who removes mercury ampules or drains mercury from open-ended devices must determine whether any spill clean-up residues or other solid wastes generated (e.g., mercury-containing device units) exhibit one or more characteristics of hazardous waste. If the residues or other solid wastes generated during the removal process exhibit one or more characteristics of hazardous waste, the handler is considered the generator of a newly generated hazardous waste and must comply with all applicable sections of 6 CCR 1007-3 260-268, 99 and 100. If the residues or any other solid wastes generated do not exhibit any characteristics of hazardous waste, the handler may dispose of them as solid wastes.

#### 3. Crushing waste mercury-containing lamps

Crushing of universal waste lamps is allowed by handlers of universal waste as long as it is conducted in accordance with the requirements of Part 273.13 or 273.33 of the Colorado Hazardous Waste Regulations. Prior to crushing waste lamps, a handler must develop and implement a written procedure detailing how to crush the lamps 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 all workers. In addition, the document must include a review of the wastes that will be generated from the crushing activities.

Handlers of universal wastes must ensure that the waste lamps are crushed in a completely enclosed system that is designed to prevent the release of any universal waste or component of universal waste to the environment (for example, a sealed tank or container that is equipped with, at minimum, a filter to capture mercury emissions). Special management procedures necessary to manage the waste properly also need to be evaluated prior to crushing. The handler must ensure that the area in which the universal waste lamps are crushed is well ventilated and monitored to ensure compliance with applicable regulatory exposure levels for mercury. Additionally, the written procedure must detail the frequency of filter change out. [Note: it may be

necessary to file an Air Pollution Emission Notice (APEN) for the crushing operation and to use control devices to capture airborne contamination]. A spill kit must be readily available in case wastes are spilled during the crushing activities.

A small or large quantity handler of universal waste who crushes universal waste lamps must determine whether the crushed lamp, its residues and/or any other solid wastes generated (e.g., filters) exhibit one or more characteristics of hazardous waste. If the crushed lamps exhibit such a characteristic, they may continue to be managed as universal waste, or they may be managed in compliance with 6 CCR 1007-3 Parts 260-268, 99 and 100. If the crushed lamps are no longer managed as universal wastes, then the handler is considered the generator of the newly generated hazardous waste.

If the residues or other solid wastes generated during the crushing process exhibit one or more characteristics of hazardous waste, the handler is considered the generator of the newly generated hazardous waste and must comply with all applicable sections of 6 CCR 1007-3 260-268, 99 and 100. Wastes generated during the crushing process, exclusive of the crushed lamps themselves, may not be managed as universal wastes. If the crushed universal waste lamp, its residues and/or any other solid wastes generated do not exhibit any characteristics of hazardous waste, the handler may dispose of them as solid wastes.

#### 4. Puncturing waste aerosol cans

Puncturing of waste aerosol cans is allowed by handlers of universal waste as long as it is conducted in accordance with the requirements of Part 273.13 or 273.33 of the Colorado Hazardous Waste Regulations. Prior to puncturing waste aerosol cans, a handler must develop and implement a written procedure detailing how to puncture the cans 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 the worker. In addition, the document must include a review of the wastes that will be generated from the puncturing activities and an outline of how incompatible wastes will be segregated prior to and after puncturing. Special management procedures necessary to manage the waste properly, such as ensuring that flammable wastes are stored away from heat or open flames, also need to be evaluated prior to puncturing. Additionally, this procedure must detail the frequency of filter change out, if applicable. [Note: it may be necessary to file an Air Pollution Emission Notice (APEN) for the puncturing operation and to use control devices to capture air borne

contamination.] A spill kit must be readily available in case wastes are spilled during the puncturing activities.

Once the puncturing activity occurs, the contents from the can or the puncturing device must be transferred to a container meeting the requirements of 6 CCR 1007-3 Section 262.34. At the point the material is removed from the can, it is considered a hazardous waste and must be managed in accordance with all hazardous waste regulations. It can no longer be managed as universal waste. The quantity of waste generated from the punctured cans must be included in the determination of generator status. All applicable generator requirements contained in Part 262 apply to this newly generated waste including accumulation time limits.

Once the waste aerosol cans have been emptied, they can be managed as a RCRA empty container and either recycled as scrap metal or disposed of in accordance with all applicable solid waste regulations.

#### 5. Disassembly of electronic devices

Disassembly of universal waste electronic devices is allowed by handlers of universal waste 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 disassembly, a handler must develop and implement a written procedure detailing how to safely disassemble each electronic device managed at the facility. Included in this document must be the type of equipment to be used, operation and maintenance of all equipment and the precautions that need to be taken to protect all workers. In addition, the document must include a review of the wastes that will be generated from these activities.

Handlers of universal wastes must ensure that the devices are disassembled in a manner that prevents the release of any universal waste or component of universal waste to the environment. Special management procedures necessary to manage the waste properly also need to be evaluated prior to disassembly. Employees must be thoroughly familiar with the procedures for disassembling each electronic device, proper waste handling practices and emergency procedures relevant to their job responsibilities. A spill kit must be readily available in case wastes are spilled during the removal activities. The handler must maintain a system to ensure compliance with the written disassembly and management procedures.

A small or large quantity handler of universal waste who disassembles universal waste electronic devices, or who generates other solid waste as a result of disassembling electronic devices, must determine whether the

disassembled device, its components or other solid wastes generated exhibit one or more characteristics of hazardous waste. If the disassembled electronic device or its components exhibit one or more characteristics of hazardous waste, they may continue to be managed as universal wastes. If the disassembled device or its components are not managed as universal waste, then the handler is considered the generator of a newly generated hazardous waste and is subject to all applicable requirements of 6 CCR 1007-3 Parts 260-268, 99 and 100. If other solid wastes generated during disassembly exhibit one or more characteristics of hazardous waste, the handler is considered the generator of the newly generated waste and must comply with all applicable sections of 6 CCR 1007-3 260-268, 99 and 100. If the disassembled devices, its components or other solid wastes generated do not exhibit any characteristics of hazardous waste, the handler may recycle them or dispose of them as solid wastes.

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

Conditionally exempt small quantity generators are those that generate less than 100 kilograms (approximately 25 gallons or 250 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 are not excused from identifying 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 waste batteries, pesticides, mercury-containing devices, aerosol cans containing hazardous waste, mercury-containing lights and electronic devices and components 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. 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:**

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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.