

Introduction to
Universal Waste

UNIVERSAL WASTE

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1. INTRODUCTION

As mandated by Subtitle C of the Resource Conservation and Recovery Act (RCRA), EPA promulgated regulations governing the safe management of hazardous waste from the point of generation until the point of final deposition. Within these regulations, EPA developed a streamlined management program for certain hazardous wastes, known as universal wastes. The universal waste program provides an alternative set of regulations that reduce the regulatory burden by allowing longer storage of these wastes and reduced recordkeeping. Universal wastes are:

- generated in a wide variety of settings, not solely industrial
- generated by a vast community
- present in significant volumes in nonhazardous management systems.

This module describes the universal waste program, found in 40 CFR Part 273, and defines which hazardous wastes may be handled under these streamlined regulations. When you have completed this module, you will be able to:

- recognize the wastestreams subject to the universal waste program
- identify the participants in the universal waste program
- understand the regulations for each type of participant
- understand the state authorization procedures
- understand the relationship of The Mercury-Containing and Rechargeable Battery Management Act (P.L. 104-142) to EPA's universal waste program.

Use this list of objectives to check your knowledge of universal waste after you complete the training session.

2. REGULATORY SUMMARY

Historically, the regulatory burden associated with recycling certain widely generated hazardous wastes has discouraged smaller facilities from sending hazardous waste to recycling facilities. Because they were often produced by households and conditionally exempt small quantity generators (CESQGs), these hazardous wastes were commonly disposed in municipal solid waste landfills (MSWLFs). As a result, EPA promulgated the universal waste regulations on May 11, 1995 to ease the management burden and promote the collection and recycling of these commonly generated wastes (60 FR 25492). EPA developed the streamlined universal waste regulations in Part 273 with three goals:

- to encourage resource conservation while ensuring adequate protection of human health and the environment
- to improve implementation of the current Subtitle C hazardous waste regulatory program
- to provide incentives for individuals and organizations to collect the unregulated portions of these universal wastestreams and manage them using the same systems developed for the regulated portion, thus removing them from the municipal wastestream.

To accomplish these goals, EPA established standards in 1995 for three types of universal wastes: batteries, pesticides, and thermostats. On July 6, 1999, EPA added hazardous waste lamps to the federal list of universal wastes (64 FR 36466). Most recently, EPA added mercury-containing equipment to the list of waste subject to the federal program (70 FR 45508; August 5, 2005). The regulations also include management standards for four types of persons managing universal waste: small quantity handlers of universal waste (SQHUW), large quantity handlers of universal waste (LQHUW), universal waste transporters, and universal waste destination facilities.

EPA's primary goal for the universal waste program is to encourage the recycling of batteries, mercury-containing equipment, pesticides, and lamps. However, handlers can send their waste for disposal and still remain subject to the universal waste regulations.

The universal waste program is less stringent than full Subtitle C hazardous waste regulations. Because authorized states may enforce regulations that are more stringent than the federal RCRA program, the universal waste program is not automatically effective in states with their own RCRA programs. However, once a state is authorized for universal waste, EPA allows states to include additional universal wastes in their state programs. The following sections of this module will describe the regulations for each category of universal waste and each type of person managing universal waste, the state authorization process, and other special issues.

2.1 WASTES SUBJECT TO THE UNIVERSAL WASTE PROGRAM

The federal universal waste regulations include hazardous waste batteries, mercury-containing equipment, pesticides, and lamps. To be covered under the universal waste program, these items must first be identified as hazardous waste. Items that still have product value and that are still being used are not wastes and, therefore, are not subject to RCRA. In addition, wastes excluded from the RCRA definition of solid or hazardous waste are not subject to the universal waste program. Only material identified as a hazardous waste that meets the definition of battery, mercury-containing equipment, pesticide, or lamp in Part 273 can be managed under the universal waste regulations.

Currently, only these four wastes are covered under the federal program. There is, however, a petition process in Part 273, Subpart G, which allows individuals, as well as states, to petition EPA to add other wastestreams to the universal waste program. Universal wastes that are mixed with hazardous wastes are fully regulated as hazardous waste. However, mixtures of universal waste and CESQG waste or household hazardous waste are subject to the universal waste requirements since these hazardous wastes are not subject to full Subtitle C regulation.

The first wastestream covered under the universal waste program consists of hazardous waste batteries. The universal waste regulations define a battery as a device consisting of one or more electrically connected electrochemical cells that are designed to receive, store, and deliver electrical energy (§273.6). Also included in this definition are unbroken batteries from which the electrolyte has been removed. Hazardous waste batteries meeting this definition are subject to the universal waste regulations. However, lead-acid batteries being recycled may be managed either as universal waste or by Part 266, Subpart G, which contains special provisions for lead-acid batteries. EPA does not have comprehensive data to make interpretations about whether certain battery types are or are not hazardous, so it is the generator's responsibility to determine if that battery is subject to regulation as a hazardous waste.

The second wastestream included in the universal waste program is comprised of certain hazardous waste pesticides. Unused pesticides will often become banned from use, damaged by temperature extremes, or no longer necessary due to crop changes. The universal waste regulations apply to persons managing pesticides that are part of a recall program or unused pesticides that are collected and managed as part of a waste pesticide collection program (§273.3(a)). A recalled pesticide becomes a waste when two conditions occur: the generator agrees to participate in the recall, and the person conducting the recall decides to discard the pesticide or burn it for energy recovery. An unused pesticide becomes a waste on the date the generator decides to discard it (§273.3(c)). Pesticides managed by farmers in accordance with §262.70, which allows farmers to dispose waste pesticides on their own farm in accordance with the disposal instructions on the pesticide label, are not subject to the universal waste regulations (§273.3(b)).

Another wastestream covered by the universal waste program includes hazardous waste lamps. Lamps often exhibit the toxicity characteristic (TC) for mercury or lead, making them a characteristic hazardous waste when discarded. In 1994, EPA proposed two options for lamp management (59 FR 38288; July 27, 1994), and in 1997, a study was conducted to evaluate

mercury emissions from discarded lamps. After responding to comments received on both documents, EPA added hazardous waste lamps to the universal waste regulations. A universal waste lamp is defined as the bulb or tube portion of an electric lighting device (§273.9). Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Several states added mercury lamps to their universal waste programs prior to the July 1999 final rule. Therefore, this federal addition made the management requirements consistent with many state programs. The approach also encourages the manufacture of low-mercury lamps in industry.

The most recent wastestream covered by the universal waste program is mercury-containing equipment. Elemental mercury is contained in many types of instruments and devices that are commonly used by electric utilities, municipalities, hospitals, and other industries, as well as households. Such devices may include thermometers, manometers, barometers, relay switches, mercury regulators, meters, pressure gauges, and sprinkler system contacts. EPA had considered including this category in the 1995 universal waste rule, but had not done so due to a lack of information about the wastestream. A 1996 petition to add the category to universal waste provided such information and, therefore, EPA decided to include mercury-containing equipment into the federal program. Because mercury thermostats meet the broader definition of mercury-containing equipment, EPA replaced the previously existing sections regulating mercury thermostats with the new requirements for mercury-containing equipment (§§273.13(c) and 273.33(c)). The management requirements in the new section are almost identical, but add provisions for managing mercury that is not in ampules.

2.2 UNIVERSAL WASTE HANDLERS

Universal waste handlers are people who generate or produce universal waste as well as people who receive universal waste from other generators or handlers and consolidate it before sending it to another handler, recycler, or treatment storage and disposal facility. Handlers accumulate universal waste but do not treat, recycle, or dispose of the waste. The universal waste regulations include requirements for two groups of handlers based on the amount of universal waste accumulated on site at any one time:

- SQHUW - accumulates less than 5,000 kilograms (kg) of all universal waste categories
- LQHUW - accumulates 5,000 kg or greater of all universal waste categories.

Regulations for SQHUWs are found in Part 273, Subpart B, while those for LQHUWs are found in Part 273, Subpart C. Once a handler triggers the LQHUW status, he or she will remain a LQHUW for the rest of the calendar year. However, the handler can re-evaluate his or her handler status at the start of each calendar year.

Universal waste handlers are the members of the regulated community that benefit most from the universal waste program. The reduced regulation, in comparison to the hazardous waste generator regulations, makes it easier for them to store universal waste and send it to a recycling

facility. Table 1 provides a comparison between some of the universal waste handler requirements and the hazardous waste generator requirements. All handlers of universal waste are prohibited from disposing, diluting, or treating universal waste except under limited circumstances as described in the regulations. SQHUWs are not required to notify EPA of their universal waste management activities, while LQHUWs must notify EPA and obtain an EPA identification number if they do not already have one. On-site waste accumulation is limited to one year for both SQHUWs and LQHUWs. Employees at SQHUW facilities must be trained in basic handling and emergency information, while those at LQHUW facilities must be trained based on the employees' responsibilities in handling the universal waste. SQHUWs have no recordkeeping requirements under the universal waste program. LQHUWs must maintain records of all universal waste shipments received by and sent from the facility, although a manifest is not required. These records may be in the form of invoices, manifests, or other shipping papers. Transport of universal waste by both SQHUWs and LQHUWs is allowed, but is subject to the universal waste transporter regulations in Part 273, Subpart D.

Table 1. Universal Waste Handler and Hazardous Waste Generator Requirements

	SQHUV	LQHUV	CESQG	SQG	LQG
Quantity limit	< 5,000 kg on site §273.9	≥ 5,000 kg on site §273.9	≤ 100 kg/month ≤ 1 kg acute/month §261.5(a) and (e)	Between 100 and 1,000 kg/month §262.34(d)	≥ 1,000 kg/month or > 1 kg acute/month Part 262 and §261.5(e)
EPA Identification Number	Not required §273.12	Required §273.32	Not required §261.5	Required §262.12	Required §262.12
On-site accumulation limit	< 5,000 kg §273.9	No limit	≤ 1,000 kg ≤ 1 kg acute ≤ 100 kg spill residue from acute §261.5(f)(2) & (g)(2)	≤ 6,000 kg §262.34(d)(1)	No limit
Storage time limit	1 year, unless for proper recovery, treatment, or disposal §273.15	1 year, unless for proper recovery, treatment, or disposal §273.35	None §261.5	≤ 180 days or ≤ 270 days §262.34(d) & (e)	≤ 90 days §262.34(a)
Manifest	Not required §273.19	Not required, but must keep basic shipping records §273.39	Not required §261.5	Required §262.20	Required §262.20
Personnel training	Basic training §273.16	Basic training geared toward employee responsibilities §273.36	Not required §261.5	Basic training §262.34(d)	Full training (as outlined in §265.16) §262.34(a)

2.3 TRANSPORTERS

Universal waste transporters are persons who move universal waste shipments from a handler to another handler, a destination facility, or a foreign destination. Unlike the used oil regulations, which allow generators to transport up to 55 gallons of their own used oil without being considered a transporter, the universal waste transporter regulations apply to persons hauling any amount of universal waste.

The universal waste transporter regulations can be found in Part 273, Subpart D. Transporters are subject to the same prohibitions on disposal, dilution, and treatment as universal waste handlers. Hazardous waste manifests are not required for universal waste shipments, but transporters must comply with applicable Department of Transportation (DOT) shipping paper requirements if the universal waste is defined as a hazardous material under DOT regulations. Similar to hazardous waste transporters, persons who transport universal waste may store the waste for up to 10 days at a transfer facility. Exceeding the 10-day limit requires compliance with the applicable handler regulations.

2.4 DESTINATION FACILITIES

The final entity regulated under the universal waste program is the destination facility. These facilities treat, dispose of, or recycle universal waste. Facilities that solely accumulate universal waste are regulated under the handler requirements. As a result, a facility may be a handler for one type of universal waste (e.g., batteries) and a destination facility for another type (e.g., pesticides). In general, a destination facility is subject to full hazardous waste regulation as a treatment, storage, and disposal facility (TSDF), including permitting, general facility standards, and unit-specific standards (§273.60(a)). Destination facilities that recycle universal waste without any prior storage are subject to regulation under §261.6(c)(2). Destination facilities are required to retain records of all universal waste shipments received by and sent from the facility.

2.5 STATE AUTHORIZATION

The universal waste regulations are not automatically effective in states that are authorized for the RCRA program because they provide less stringent management standards for hazardous waste batteries, pesticides, thermostats, and lamps. As with other sections of the RCRA regulations, states can apply for and become authorized to implement the universal waste program. EPA encourages states to adopt and become authorized for the universal waste regulations since these streamlined requirements encourage recycling of commonly generated wastestreams. As of March 31, 2005, 47 states have adopted or have been authorized for the universal waste regulations.

States that are applying for universal waste authorization or that have received universal waste authorization may include additional wastes in their programs. In §273.81, EPA established criteria that a wastestream should meet to be included as a universal waste. States should

evaluate potential additional wastes against these criteria. EPA reviews and approves a state program based solely on the four wastes included in the federal program (i.e., batteries, pesticides, mercury-containing equipment, and lamps) and does not review state-only universal wastes.

3. THE MERCURY-CONTAINING AND RECHARGEABLE BATTERY ACT

The Mercury-Containing and Rechargeable Battery Management Act (P.L. 104-142) was signed into law by President Clinton on May 13, 1996. The two main goals of this Act are to decrease mercury content in batteries and to increase voluntary recycling of batteries. Although this Act does not amend RCRA directly, it makes the federal universal waste regulations effective in all 50 states for the collection, storage, and transportation of:

- used rechargeable batteries
- lead-acid batteries not managed under Part 266, Subpart G
- certain mercury-containing batteries banned from domestic sale
- used consumer products containing rechargeable batteries that cannot be easily removed.

States that have battery management standards are required to have programs identical to the federal universal waste program for the management of these materials. Hazardous waste batteries that meet the definition in this Act must be managed as universal waste.

4. REGULATORY DEVELOPMENT

On August 5, 2005, EPA published a final rule adding mercury-containing equipment to the wastes subject to the federal universal waste program (70 FR 45508). Elemental mercury is contained in several types of instruments that are commonly used by electric utilities, municipalities, and households, in order for the device to operate. Such devices may include thermometers, manometers, barometers, relay switches, mercury regulators, meters, pressure relief gauges, water treatment pressure gauges, and sprinkler system contacts. In a 1996 petition to EPA, the Utility Solid Waste Activities Group (USWAG) estimated that approximately 3,000 pounds of such equipment are generated annually by the electric and gas utilities and by other businesses including retail and commercial establishments, office complexes, and hospitals. EPA believes that adding these wastes to the universal waste rule facilitates collection of mercury-containing equipment, thereby reducing the amount of mercury reaching municipal landfills and incinerators. Because mercury thermostats meet the broader definition of mercury-containing equipment, EPA replaced the existing sections regulating mercury thermostats with the new requirements for mercury-containing equipment.