

UNIVERSAL WASTE

COURSE OUTLINE

- **The "hazardous waste" disposal process can be extremely complicated.**
 - For many years, any organization that wanted to dispose of a battery or even a light bulb had to go through extensive and inconvenient disposal procedures.
- **In 1995, the Environmental Protection Agency (EPA) recognized the need to get certain hazardous wastes out of landfills and recycle them.**
 - Their goal was to preserve resources and reduce chemical releases into the air and soil.
- **To accomplish this, they created a different class of hazardous waste called "universal waste".**
 - At some point, almost every business and government agency generate these waste materials.
- **"Universal wastes" are less harmful to people and the environment than other "hazardous wastes", so there are fewer regulatory requirements regarding their disposal.**
 - This makes it easier for organizations to recycle them.
- **There are five commonly discarded materials that are considered to be "universal waste"...**
 - Batteries.
 - Pesticides.
 - Mercury-containing equipment.
 - Certain types of light bulbs.
 - Aerosol cans.
- **When universal waste items are being discarded, they are stored, shipped and transported by four types of companies:**
 - "Small quantity" handlers.
 - "Large quantity" handlers.
 - Universal waste "transporters".
 - Universal waste "destination facilities".

- **The process begins with "Universal Waste Handlers".**
 - These are the people who generate universal waste, as well as people who receive and consolidate it.
- **A universal waste "generator" is a person or an organization that creates (or "generates") waste.**
 - For example, a company that uses batteries and disposes of them when they no longer work would be considered a "universal waste generator".
 - When they throw these batteries away, they are the ones who are both generating and handling the waste.
- **If generators don't want to store and transport the universal waste that they create, they can choose to transfer it to a "waste handler".**
 - These companies collect the waste from different generators and send it on to other handlers, recyclers, treatment or disposal facilities.
- **The EPA's Universal Waste Regulation classifies waste handlers by how much waste they handle in a year.**
 - Handlers that accumulate less than 5,000 kilograms of all universal waste categories are called "small quantity handlers".
 - "Large quantity handlers" accumulate 5,000 or more kilograms of universal waste.
 - Both small and large quantity handlers are allowed to accumulate and store universal waste for up to a year.
- **In addition to collecting the waste, the handlers are responsible for preparing the waste for shipment to a "universal waste destination facility".**
 - This includes clearly labeling containers to indicate the type of waste that's inside, using terminology that is found in the EPA regulations.
- **Depending on the type of waste that is being transported, the handlers may also have to meet the Department of Transportation's shipping regulations for...**
 - Packaging.
 - Labeling.
 - Marking.
 - Placarding.
 - Proper shipping papers.

- **Once a handler has prepared a shipment, it is handed off to a universal waste "transporter".**
 - While the shipment is in transit, the driver is required to follow all applicable DOT regulations for universal waste.
- **Eventually, the shipment arrives at the "destination facility", where the waste is actually treated, recycled or disposed of.**
 - Both the handlers and the destination facility are responsible for tracking the shipment... and knowing where it is at all times.
- **To process universal waste safely, you and everyone in your facility should receive training that includes information about how you can...**
 - Recognize potential hazards.
 - Respond to incidents involving universal waste.
 - Keep yourself safe if an emergency involving a waste should ever occur.
- **Batteries are a necessity in our society... but if the disposal process is too complicated, companies might be tempted to dispose of them improperly to save time and money.**
 - This would be extremely bad for the environment.
- **Rather than classify all batteries as "hazardous waste", the Environmental Protection Agency (EPA) has declared some types to be "universal waste".**
 - This makes it easier to recycle them quickly and safely.
- **According to the EPA's Universal Waste Regulation, a "battery" is "a device consisting of one or more electrically connected electrochemical cells which is designed to receive, store and deliver electric energy".**
- **As long as the casing of a battery's cell remains intact and closed, universal waste handlers are allowed to...**
 - Sort batteries by type, or mix battery types in one container.
 - Discharge batteries by bleeding off their electricity.
 - Disassemble battery packs into individual batteries.
 - Remove batteries from consumer products.
 - "Regenerate" used batteries by restoring their charge.
- **The biggest problem with disposing of batteries is that they can leak, exposing the hazardous material that is inside.**
 - This can not only contaminate the soil, but it can also burn your skin, mouth and eyes if you are exposed to it.

- **The first step in preventing leaks is to place batteries in a secure, leak-proof container.**
 - The container must be inspected for any damage before use.
 - Once the batteries are inside, it should be closed securely.
- **You should never store batteries in a metal container.**
 - This can cause "short-circuiting", which creates a major fire hazard.
 - If you have any questions about approved materials for battery storage containers, ask your supervisor.
- **"Short-circuiting" can happen any time the positive and negative ends of batteries touch each other.**
 - This causes the batteries to discharge, and heat up to very high temperatures very quickly.
- **You can prevent short-circuiting by...**
 - Placing tape over a battery's terminals.
 - Packaging batteries so their terminals can't come into contact with each other.
 - Discharging batteries according to the manufacturers' instructions.
 - Placing individual batteries in a separate plastic bag before putting them into a container.
- **When you're labeling individual batteries, the labels should say either...**
 - "Universal waste – Battery".
 - "Waste Battery".
 - "Used Battery".
- **If you are labeling a container that is holding multiple batteries, the labels should say either...**
 - "Universal Waste – Batteries".
 - "Waste Batteries".
 - "Used Batteries".
- **If a battery is leaking, you should...**
 - First, place the battery in a sealable 5-gallon pail with an absorbent material such as paper towels.
 - Then, scoop or wipe up as much of the discharged material from the spill area as possible, and wipe down the area itself with a wet sponge.

- **Place the dirty rags, towels and sponges that you used in your clean-up in the 5-gallon pail with the damaged batteries.**
 - Finally, you should seal the container and put a label on it.
- **When a battery is leaking, it becomes "hazardous waste"... so make sure that you label the container appropriately.**
 - When you're done, wash your hands and face thoroughly.
- **Some pesticides must go through the "hazardous waste disposal process", but some of them can be disposed of as "universal waste".**
 - Pesticides that have either been recalled or accumulated through waste pesticide collection programs can be classified as "universal waste".
- **A universal waste handler must handle pesticides in a way that "prevents damage to the environment".**
 - This includes storing them in closed, secure containers compatible with the pesticide, that show no signs of leakage or damage.
 - The containers themselves should be stored in a locked area, preferably indoors.
 - If pesticides must be transported in a vehicle or stored in particularly large vessels, they should also be closed and secure, and have no evidence of leakage or damage.
- **When the pesticides are ready to be transported to a "universal waste destination facility", the container, tank or transport vessel that holds them should be labeled or marked clearly with...**
 - The label that was on the product when it was purchased.
 - The words "Universal Waste – Pesticides" or "Waste – Pesticides".
- **Waste handlers are responsible for ensuring that pesticides and mixtures involving pesticides are not spilled or released into the environment... but sometimes, spills do happen.**
 - For liquid spills, you should quickly cover the area with an absorbent material, like cat litter, paper towels or newspaper, then sweep up the materials and seal them in a heavy duty plastic bag for disposal.
 - Dry pesticide spills, such as dusts, powders or granules, should be lightly misted with water or covered with a sheet of plastic, then collected in a heavy-duty bag for disposal.
 - After you finish cleaning up a spill, make sure to wash your hands thoroughly before you return to work.

- **Mercury is a very useful element, but high levels of mercury can be toxic.**
 - Being exposed to unsafe levels of mercury can cause a number of health problems, including severe lung and nervous system damage.
- **Most "mercury-containing equipment", such as blood pressure cuffs, thermostats and barometers, can be treated as "universal waste".**
 - When these materials are disposed of properly, they pose a relatively low risk to people and the environment.
- **When mercury is used in equipment, it is usually housed in an "ampule".**
 - An "ampule" is an airtight vial made of glass, plastic, metal or any combination of these materials.
- **These ampules can be removed from the equipment for disposal, but only if the handlers can...**
 - Remove and manage the ampules in a way that will prevent breakage.
 - Remove the ampules only over or in a "containment device" (like a tray or a pan).
 - Immediately "capture" any mercury that spills or leaks and put it into a secure container.
- **These ampules must also be...**
 - Removed in an area that is well ventilated.
 - Stored in closed, non-leaking containers that are in good condition.
 - Packed in their container with materials that are adequate to prevent breakage.
- **If you are dealing with equipment where the mercury ampules can't be removed, it should always be stored in a leak-proof container with a lid.**
 - Make sure to use a plastic container, such as a 5-gallon bucket.
 - You should never use metal containers, because they can actually absorb mercury.
- **The most important part of removing mercury ampules is ensuring that employees receive the training that they need to keep themselves safe.**
- **When containers of equipment or ampules are ready to be transported to a "universal waste destination facility", they should be labeled as either...**
 - "Universal Waste - Mercury Containing Equipment".
 - "Waste Mercury-Containing Equipment".
 - "Used Mercury-Containing Equipment".

- **Any containers of "mercury-containing thermostats" must be labeled with either...**
 - "Universal Waste - Mercury Thermostat(s)".
 - "Waste Mercury Thermostat(s)".
 - "Used Mercury Thermostat(s)".
- **If you ever experience a mercury spill you should clean it up immediately, using your facility's "spill kit".**
 - The contents of the kit might vary depending on the facility.
- **Most spill kits include collection equipment, such as...**
 - Chemical sponges.
 - Aspirator bottles.
 - Disposal bags.
- **The kits also provide you with the PPE you need to keep yourself safe, such as...**
 - Gloves.
 - Goggles.
 - Shoe or boot covers.
 - Vapor suppressor bottles.
- **Once you've used the spill kit to remove as much of the liquid mercury as possible from the surfaces it's on, go over the areas with sticky tape.**
 - This will pick up any remaining particles of mercury.
- **Next, place the dirty rags, towels, sponges, tape and any other clean-up materials that you have used in a sealable plastic bag, then seal the bag in a 5-gallon bucket.**
 - Cleaned-up mercury is always considered "hazardous waste", so make sure to store the bucket according to your facility's "hazardous waste disposal guidelines".
- **Lastly, thoroughly wash your hands and face before returning to work.**
- **Most used or broken light bulbs are safe for you to handle and throw away, but bulbs that contain mercury (referred to by the EPA as "lamps") are considered "hazardous waste".**
 - The mercury inside these bulbs can be very harmful to people and the environment.

- **In 1999, the EPA made it much easier to dispose of low-toxicity, mercury-containing lamps by classifying them as "universal waste".**
 - Before then, you had to give these lamps to a hazardous waste handler when they were ready to be thrown away... and the handler had to comply with the federal regulations for hazardous waste disposal.
- **The EPA classifies several types of lamps as "universal waste", including...**
 - Fluorescent bulbs.
 - High intensity discharge bulbs.
 - Neon light bulbs.
 - Mercury vapor bulbs.
 - High pressure sodium bulbs.
 - Metal halide bulbs.
- **Even though universal waste lamps have a low toxicity, they still need to be handled with care... and disposed of properly.**
 - They must be disposed of in a way that won't introduce hazardous substances into the environment.
- **To prevent the release of hazardous materials into the environment, lamps should be stored in a way that can prevent breakage.**
 - "Long lamps" like fluorescent tubes should be stored in a sturdy cardboard box, or another tall container that can prevent breakage.
 - Once the lamps are placed in them, the containers must remain closed and show no evidence of leakage.
 - Smaller lamps can be stored in a five-gallon plastic bucket or a sturdy non-metal container with a lid.
- **You should never store "universal waste lamps"...**
 - In a metal container.
 - In an open container.
 - Loose.
 - Taped together.
- **The containers that hold the lamps should be labeled clearly with either...**
 - "Universal Waste – Lamps".
 - "Used Lamps".
- **Even if you store and handle "universal waste lamps" correctly, they can still be easy to break.**
 - If that happens, you need to know how to safely clean up the result.

- **If you encounter a lamp that is broken, leaking or damaged, you must treat it as "hazardous waste".**
 - When handlers find a lamp that shows any evidence of breakage, leakage or damage, they must immediately clean it up, place it into a closed, structurally sound container and label it as "Hazardous Waste".
 - If you handle any of these lamps, you should always wash your hands and face thoroughly before you go back to work.
- **Aerosol cans are now considered "universal waste" in most states... which makes it much easier to dispose of them.**
 - Until 2020, aerosol cans were classified as "hazardous waste"... which made their disposal process very complicated.
- **Aerosol cans are defined by three characteristics:**
 - They contain a gas that is compressed, liquefied, or dissolved under pressure.
 - Their sole purpose is to expel a liquid, paste or powder.
 - They are fitted with a self-closing "release device", that allows the contents to be ejected by the gas.
- **When they are discarded, these cans must be handled in a way that prevents the release of harmful material into the environment, typically the propellant.**
 - This begins with removing the spray tips from the cans so that they don't discharge while they're being stored or shipped.
 - After the tips have been removed, the cans should be gathered and put into a container that shows no evidence of leakage, spillage or damage.
- **Another important aspect of handling aerosol cans is protecting them from sources of heat.**
 - Aerosols often contain gases that can ignite easily, so they should be handled and stored in a cool environment.
- **Once universal waste handlers take possession of them and ensure that each aerosol can is intact, they can...**
 - Sort the cans by type, or mix intact cans in one container.
 - Remove the actuators inside the cans to further reduce the risk of accidental release.

- **Aerosol cans, or a container with cans in it, must be labeled with...**
 - "Universal Waste - Aerosol Cans".
 - "Waste Aerosol Cans".
 - "Used Aerosol Cans".
- **The universal waste rule allows handlers to "treat" aerosol cans, so that the cans can be recycled as scrap metal instead of being thrown away.**
 - This involves puncturing the cans and draining their contents.
- **"Treating" an aerosol can can be dangerous.**
 - The contents are under high pressure and could also be extremely flammable.
- **Any handlers who perform these processes must follow certain requirements to keep workers safe.**
 - First and foremost, they must always use a device that is specifically designed to safely puncture the cans and contain any residue or emissions.
- **Employees need to protect themselves with the appropriate personal protective equipment (PPE) when they're treating aerosol cans, which includes...**
 - Safety glasses with side shields, goggles or equivalent eye protection.
 - A face shield.
 - Footwear with reinforced toes.
 - Nitrile gloves.
 - A chemical splash apron.
 - In certain situations, you might also need to wear a respirator.
- **Since aerosol cans can be flammable, the equipment that punctures the cans should always be used in a well-ventilated area.**
 - There is absolutely no smoking allowed in this area.
- **Written procedures that contain this information, plus anything else that people need to know when working with the cans, must be published and distributed to all employees who are involved in the process.**
 - These instructions should include procedures for handling a spill or a leak.

*** * * SUMMARY * * ***

- **Anyone who works with "universal waste" has a responsibility to manage it in a way that protects both people and the environment from harm.**
- **If "universal waste batteries" are handled correctly, it can reduce the risk of leakage... but if they do leak, you need to know how to keep yourself and those around you safe.**
- **A "universal waste handler" is responsible for disposing of used and recalled pesticides safely, and knowing what to do if they are released into the environment.**
- **Even though mercury-containing equipment is considered "universal waste", a mercury spill can be very dangerous... so you should know how to protect yourself if one occurs.**
- **Universal waste "lamps" are very fragile, so you should be very careful when you're working with them... and know what to do if they break.**
- **Working with universal waste aerosol cans is usually low-risk, but puncturing and draining them for recycling can be dangerous... so you need to be familiar with safety procedures for disposing of them.**
- **Because the Universal Waste Regulation makes it easier to recycle these commonly used hazardous materials, more and more companies are taking advantage of that opportunity... and making the earth a safer place to live at the same time!**