

HAZARDOUS MATERIALS PROGRAM ENVIRONMENTAL FACT SHEET

Vaping Devices

What is a vaping device?

Vaping devices are battery-powered devices that convert liquid, typically containing nicotine (either naturally derived or synthetic) and other chemicals, into an aerosol that users inhale. They are also known as vapes, vape pens, e-cigarettes, or e-cigs, and often resemble traditional cigarettes or everyday items like pens. Although there is wide variability in design and appearance, vaping devices generally operate in a similar manner and are made of similar components. Vapes typically contain nicotine, an addictive chemical found in cigarettes and other tobacco products. Nicotine is acutely toxic and has strict regulations for its management and disposal.

Do waste vaping devices need to be managed as hazardous waste?

Vaping devices that contain nicotine and/or lithium-ion batteries are hazardous when disposed of. Some vaping devices, particularly reusable vaping devices, are designed to be separated into components including the housing, battery, and liquid cartridge. In these cases, generators may choose to separate hazardous and non-hazardous components and manage them separately. However, if the vaping device is an integrated unit that is designed to be used and then discarded (i.e., “disposable” or “single-use” vapes), the generator will need to manage the entire unit as hazardous waste. Below is a summary of how the [Vermont Hazardous Waste Management Regulations](#) (VHWMR) apply to vaping devices that contain nicotine and/or lithium-ion batteries.

Note: This guidance applies to vapes that are generated by non-households (i.e., businesses, schools, government facilities, etc.). All household-generated wastes, including vaping devices, are exempt from regulation as hazardous waste under § 7-203(a) of the VHWMR. Please refer to your local solid waste management entity (SWME) or the Vermont DEC Solid Waste Program if you have questions about managing household hazardous waste (HHW); contact information is listed at the end of this fact sheet.

Nicotine (P075 waste code)

Vaping devices that contain nicotine must be managed as hazardous waste according to the requirements of the VHWMR. As noted before, if the cartridge containing the liquid nicotine can be easily removed from the vaping device (i.e., the vape is designed to be reusable), generators may choose to remove the cartridge and manage it as hazardous waste. Nicotine is regulated as an *acutely hazardous waste* (§ 7-215) and carries the P075 waste code. Generators should note that management requirements for acutely hazardous waste are more stringent than those for hazardous waste, as outlined in the next section of this fact sheet.

Note: while FDA-approved nicotine replacement therapies including patches, lozenges, and gums are excluded from regulation as hazardous waste, vapes are *not* an FDA-approved nicotine replacement therapy. Vapes that contain nicotine may not be managed under the exemption and are regulated as P075 hazardous waste.

Lithium-ion Batteries (D001, D003 waste codes; or Universal Waste)

Virtually all vaping devices contain some type of battery—often a lithium-ion battery. Lithium-ion batteries are hazardous when they are disposed of, due in part to the ignitability and reactivity characteristics (waste codes D001 and D003, respectively). If the battery can be easily removed from a vaping device (i.e., the vape is designed to be reusable), generators may choose to remove it and manage it as “universal waste” rather than under the more stringent standards required for hazardous waste. Refer to our fact sheets on [Batteries](#) and [Universal Waste](#) for more information. If it is not possible to safely remove the battery (i.e., the vape is designed to be used and discarded), and the vape contains nicotine, the generator will need to manage the vaping device as hazardous waste.

Are there unique considerations for managing *acutely* hazardous waste?

When it comes to determining generator category, there are lower limits for generation and onsite accumulation of acutely hazardous waste. A facility that generates 2.2 pounds or more of acutely hazardous waste in one month; generates 220 pounds of any residue or contaminated material resulting from the cleanup of a release of any acutely hazardous waste in one month; and/or accumulates 2.2 pounds of acutely hazardous waste at any one time, is regulated as a large quantity generator (LQG). With this in mind, generators of vaping devices—particularly generators that would otherwise be regulated as a very small quantity generator (VSQG) or small quantity generator (SQG)—should ensure that their acutely hazardous waste is shipped offsite before they hit the (relatively low) accumulation limit of 2.2 pounds. Refer to our fact sheet on [Accumulation and Storage of Hazardous Waste](#) for more information on determining generator category.

Are there unique considerations for healthcare facilities that generate waste vapes?

Because nicotine meets the definition of pharmaceutical, any generator that is notified as a healthcare facility must manage vapes as hazardous waste pharmaceuticals under Subchapter 10 of the VHWMR. For healthcare facilities, only non-pharmaceutical forms of nicotine hazardous waste (e.g., nicotine used in manufacturing or research) are regulated as non-pharmaceutical hazardous waste. Refer to our [Pharmaceuticals](#) fact sheet for more information on the requirements of Subchapter 10.

How should vaping devices collected by schools be managed?

Schools are not households and are therefore regulated as hazardous waste generators. In addition to following the best management practices listed later in this fact sheet, schools should work with their local solid waste management entity (SWME), hazardous waste contractor, or hazardous waste transporter (if applicable) to ensure that their waste is properly moved offsite to a designated facility, just like they would for other hazardous waste that they generate. For more information, refer to the

[Hazardous Waste Management for Schools](#) webpage, as well as the list of [Hazardous Waste Transporters](#) (filter by checking the “H” box). A link to SWME contacts is included at the end of this fact sheet.

What are the best management practices (BMPs) for managing waste vaping devices?

Generators of waste vapes containing lithium-ion batteries and/or nicotine must manage their waste according to the applicable requirements for universal waste and/or hazardous waste. This includes, in part, proper container management and labelling according to the generator’s category. However, in addition to following the requirements of the VHWMR, there are BMPs generators should strongly consider when it comes to vaping devices.

Because vapes typically contain lithium-ion batteries, and fires are not uncommon when dealing with lithium-ion batteries, the following BMPs are recommended from a fire safety standpoint:

- Evaluate waste vaping devices for signs of swelling, leaking, or damage prior to storing.
- Upon collection of vapes that *show signs* of swelling, leaking, or damage:
 - Place any damaged vapes in a closed, watertight storage container, such as a plastic container. Add sand, kitty litter, vermiculite, CellBlockEx, or another fire containment material to aid in safe storage.
 - Be aware that if liquid nicotine is leaking from a damaged vape placed in a storage container, the container and contents (vape, liquid nicotine, and any containment material) must be managed as acutely hazardous waste.
 - When handling damaged vapes, always wear safety equipment (e.g., gloves, apron, eye protection). Note that liquid nicotine is toxic and should not come in contact with the skin or face. Damaged batteries could cause burns or other injuries.
- Upon collection of vapes that *do not show signs* of swelling, leaking, or damage:
 - Place each vaping device in an individual plastic bag.
 - Place the individually bagged vaping devices in a sealed plastic (e.g., polyethylene) container.
- Maintain the container of waste vapes in a locked storage area where it cannot be accidentally knocked over or easily accessed. Keep a fire extinguisher in the storage area.

Facilities that accumulate 2.2 pounds or more of acutely hazardous waste at any one time are regulated as LQGs. The following BMPs may help VSQGs/SQGs avoid accumulating 2.2 pounds of acutely hazardous waste vapes:

- Utilize small (e.g. five-gallon) containers for accumulation and storage of waste vapes.
- Plan to ship full containers of waste vapes offsite in a timely manner:
 - SQGs have 180 days to ship containers storing hazardous waste offsite. Be aware that if your facility nears the 2.2-pound limit for onsite accumulation of acutely hazardous waste, offsite shipments may need to be done more frequently than 180 days.

- VSQGs do not have a time limit for onsite storage of hazardous waste, but it is a good practice to transport waste vapes offsite *at least* once per year. We suggest marking the container with the date that the container was first used to store vapes, monitoring the date, and transporting offsite within one year of the start date. However, be aware that if your facility nears the 2.2-pound limit for onsite accumulation of acutely hazardous waste in less than a year, offsite shipments will need to be done more frequently.

Additional Resources

- The Hazardous Materials Program’s [Environmental Fact Sheets](#) webpage includes additional guidance mentioned in this fact sheet related to Batteries, Universal Waste, Accumulation and Storage of Hazardous Waste, Pharmaceuticals, and more.
- If you have questions about managing household hazardous waste (HHW) vapes, refer to your [solid waste management entity \(SWME\)](#) or contact the Vermont DEC Solid Waste Program.
- [Addressing Vaping in Vermont Schools – An Education Toolkit](#) from Vermont Department of Health.

For more information regarding vaping devices, or if you have other hazardous waste management questions, please contact:

Hazardous Materials Program – Hazardous Waste Section
Waste Management and Prevention Division
Vermont Department of Environmental Conservation
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802-828-1138
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