Connecticut Department of Public Health Fact Sheet

Tobacco Control Program | January 2023

SAFE DISPOSAL FOR ELECTRONIC NICOTINE DELIVERY SYSTEMS(ENDS)

Overview: E-cigarettes and other electronic vapor products or 'vapes', their rechargeable batteries and cartridges, and the bottles that contain e-liquids (liquid nicotine mixtures) are considered hazardous waste as they can pose a threat to human health and to the environment if they are disposed of improperly. Electronic vapor product and e-liquid waste should not be thrown in the regular trash or flushed. Instead, these items should be taken safely to a hazardous waste facility.[1] This fact sheet provides descriptions of the types of hazardous materials in vapes and tips for schools and others about safe electronic vapor product and nicotine waste disposal.

Nicotine Is an Acute Hazardous Waste: Discarded or neglected vaping products may have unused e-liquid that contains nicotine. Nicotine, including nicotine salt, is listed by the Environmental Protection Agency as an acute hazardous waste.[1] Improper disposal or storage of vaping products may lead to unintentional exposure and accidental nicotine poisoning.[2,3] In 2022, America's Poison Control Centers managed more than 6,700 exposure cases related to e-cigarette devices and liquid nicotine.[4] Liquid nicotine can be fatal to small children involved in accidental exposures.[5]

Improper disposal of vapes and e-liquid products can be harmful to the environment. If thrown in the trash or flushed into the sewer system, the nicotine solution in an e-liquid product can seep into the ground or water and become a danger for wildlife and humans.[5]

Batteries Are Hazardous Waste: E-cigarettes and their components are considered hazardous waste. Vaping products typically contain lithium or lithium-ion type batteries. Both types of batteries are considered hazardous waste due to the fact they are ignitable and reactive. The shape and construction of e-cigarettes can make them (more likely than other products with lithium-ion batteries) behave like 'flaming rockets' when a battery fails.[6] Fires or explosions caused by the batteries used in vaping products are uncommon but have been linked to explosions in recycling trucks when batteries are not

disposed of properly. Additionally, as e-cigarette batteries degrade, the compounds in them can seep into nearby water.[5]

All types of batteries are eligible to be managed as Universal Waste. Individuals should separate the battery from the rest of the vaping product, then dispose of it. Most buildings and homes already generate other types of universal waste, such as fluorescent lamps, other types of batteries (e.g., emergency lighting and laptop batteries), used electronics and rechargeable power tools. Vaping product batteries can be simply thrown away with other household batteries.[5]

Best Practices for Safe Disposal:

- Turn off the device and remove the rechargeable battery before disposal. Devices with a 'push button' could be activated when placed against other items in a pocket or storage container. If the device is not yours, have the user do this.
- Handle used and discarded cartridges carefully to avoid unintentional exposure to unused nicotine. E-liquid can be absorbed through the skin and cause accidental poisoning. Do not throw cartridges in the regular trash.
- Do not rinse electronic vapor product items, especially e-liquid containers, to remove e-liquid residue. That water will become hazardous.
- Never throw rechargeable batteries into the trash. Store them in a cool, temperature-controlled environment and in a container clearly labeled for hazardous waste. Deliver the sealed container to a local hazardous waste facility every 90 days.

Steps for Safe Disposal:

Step 1: Always wear new nitrile gloves when handling and separating e-cigarettes and vaping components (e.g., battery, e-liquid container, atomizer)

Step 2: Place all separated components into sealed containers or bags for safe storage (e.g., hazardous waste bins or Ziploc bags)

Step 3: Transport or schedule pickup to a hazardous waste disposal site after 90 days. For more information, go to: HHW Collection Schedule.

Don't:

- Handle e-cigarettes with bare hands
- Rinse e-liquids in the sink or toilet
- Throw any component in the trash or recycling

Information for Safe Disposal at Schools:

Schools have been put in the unexpected position of confiscating electronic vaping devices from students. Administrators are now expending significant resources to respond to the vaping epidemic[7] but may not be aware of disposal options. Schools generate other forms of fully regulated hazardous materials, such as waste from science labs and medical waste from the nurse's office. They may be able to use the same vendor(s) to dispose of the vaping products. If the school nurse's office generates biomedical or pharmaceutical waste (e.g., epi pens and medications), the vendor that handles those items may also be able to dispose of vaping products.

Most schools are classified as a 'Conditionally-Exempt Small Quantity Generator' (CESQG). A CESQG can contact the contractor running a Household Hazardous Waste Collection event in advance and complete the required paperwork to get their vaping product waste pre-approved for collection. They can also hire a hauler that is licensed by the Connecticut Department of Energy and Environmental Protection (DEEP) to take away the waste. Nicotine is classified as an 'acutely hazardous waste' and could affect the school's hazardous waste generator category if more than one kilogram of liquid nicotine waste is collected.

Provided below are links to DEEP's small business collection page, hazardous waste facilities, and a list of licensed haulers:

- DEEPs Small Business Page
- DEEPs Hazardous Waste Facilities
- DEEPs Licensed Haulers

Connecticut Department of Energy & Environmental Protection

References:

[1] EPA opinion letter on e-liquid as hazardous waste: https://rcrapublic.epa.gov/files/14850.pdf.Discarded or neglected vaping products may contain harmful substances, including unused e-liquid.

[2] Krause MJ, Townsend TG. *Hazardous waste status of discarded electronic cigarettes. Waste Manag.* 2015; 39:57-62;

[3] Hendlin YH. Alert: *Public health implications of electronic cigarette waste*. American Journal of Public Health. 2018;108(11):1489-1490

[4] *National Poison Data System, America's Poison Centers. - e-Cigarettes and Liquid Nicotine*, https://www.aapcc.org/track/ecigarettes-liquid-nicotine.

[5] "Tips for Safe Disposal of e-Cigarettes and e-Liquid Waste." U.S. Food and Drug Administration, FDA, 23 Sept. 2020, https://www.fda.gov/tobacco-products/products-ingredients-components/tips-safe-disposal-e-cigarettes-and-e-liquid-waste

[6] "Disposing of e-Cigarette Waste - Public Health Law Center." *Public Health Law Center at Mitchell Hamlin School*, Robert Wood Johnson Foundation, Dec. 2019, https://www.publichealthlawcenter.org/sites/default/files/resources/Disposing-of-E-Cigarette-Waste.pdf

[7] "HHW Collection Schedule." *CT.gov,* https://portal.ct.gov/DEEP/Waste-ManagementandDisposal/HouseholdHazardous-Waste/HHW-Collection-Schedule

For More Information, Contact:
Connecticut Department of Public Health | Tobacco Control Program
410 Capitol Avenue, PO Box 340308, MS #11HLS
Hartford, CT 06134-0308
Call: 860-509-8251 or visit: www.ct.gov/DPH/Tobacco

Last Updated: March 15, 2023