



Nicotine Waste Management

Division of Waste and Hazardous Substances, Compliance and Permitting Section

Nicotine and the Environment

Historically, nicotine was associated with cigarettes. However, as cigarette smoking is related to negative health consequences, manufacturers have developed products to help with smoking cessation, as well as alternatives to traditional smoking. Almost all products and alternatives to smoking contain one of the same chemicals that is found in cigarettes – nicotine.

Disposal of nicotine and nicotine-containing products can pose serious issues to human health and the environment if done improperly. Nicotine and nicotine-containing items must be evaluated prior to disposal to determine if they are a hazardous waste. Nicotine is a listed, acute hazardous waste (P075) which means the accumulation and disposal of nicotine waste is regulated in accordance with 7 DE Admin. Code, §1302 Delaware’s *Regulations Governing Hazardous Waste* (DRGHW).

Who is a hazardous waste generator?

A generator is defined in DRGHW as “any person by site, whose act or process produces hazardous waste identified or listed in Part 261 of these regulations, or whose act first causes a hazardous waste to become subject to regulation.” This means that when your site disposes of (“throws away”) nicotine-containing waste, such as vaping liquids and e-cigarettes, your site is a hazardous waste generator and the hazardous waste is required to be managed differently than regular solid waste (“trash”).

While nicotine-containing wastes are commonly generated in the retail sector at vape shops and convenience stores and from tobacco manufacturing operations (e.g., custom mixing of e-liquids), they are also generated at sites that confiscate nicotine-containing products that become waste, making them subject to hazardous waste regulation. Examples of such regulated sites include schools and law enforcement agencies.

If your site meets the definition of a “healthcare facility” in §266.500, nicotine-containing wastes must be managed as pharmaceutical waste under Part 266, Subpart P. Examples of healthcare facilities include vape shops, e-cigarette retailers, hospitals, pharmacies, and school based healthcare offices. If your site is a vape shops and/or e-cigarette retailer, please see the [Vape Shop & E-Cigarette Retailer Hazardous Waste Management](#) guide for information on properly managing nicotine waste generated at your site. If your site is any other type of healthcare facility and generates nicotine waste, please see the [Pharmaceutical Waste Management Guide](#) to ensure all regulatory requirements are followed. The information provided within this document describes how

to manage nicotine-containing waste that does not qualify to be managed as a pharmaceutical.

Be aware that disposing of any item, nicotine-related or otherwise, requires a generator to make a hazardous waste determination. This determination is made at the time the product is known to be a waste and is necessary to ensure that nicotine wastes are properly managed while being stored and disposed. DNREC’s Compliance and Permitting Section (CAPS) has created the [Hazardous Waste Determinations](#) fact sheet for additional guidance on assessing waste streams. Please know that tobacco cigarettes, cigars, and loose-leaf tobacco are typically not a hazardous waste as the chemical formulation of nicotine in those products differs from the liquids used in vaping devices/e-cigarettes.

Nicotine Patches, Gum & Lozenges



≠ P075

Delaware has adopted the “Pharmaceutical Rule” (DRGHW Part 266, Subpart P) which provides clarification as to the types of nicotine-containing products that are required to be managed as P075 listed acute hazardous waste when disposed. With the adoption of the Pharmaceutical Rule, FDA-approved over-the-counter (OTC) nicotine replacement therapies (i.e., patches, gum, lozenges) are no longer regulated as P075 acute hazardous waste when disposed. Nicotine patches, gum, and lozenges can be disposed of as non-hazardous waste.

However, nicotine and other formulations of nicotine remain P075 listed, acute hazardous waste when they become waste to be disposed.

Identifying Nicotine Hazardous Waste

With the exception of nicotine patches, gum, and lozenges, you must identify and make hazardous waste determinations on all nicotine-related waste generated by your site, regardless of the waste’s nicotine content. Examples of waste that commonly contain nicotine requiring management as P075 acute hazardous waste include:

- E-cigarettes and vape pens
- Prepackaged e-liquid cartridges or vials. This includes filled, partially-filled, and empty cartridges or vials.
- Prepackaged e-liquid refill cartridges or vials
- Custom or “house blends” of e-liquids

- Expired, damaged, confiscated or otherwise unsalable nicotine solutions
- Rinse water (“rinsate”) from the cleaning glassware, cartridges, tools, or containers that once held nicotine-containing solutions
- Gloves and clean-up items (e.g., rags, paper towels, absorbents) that have come into contact with nicotine-containing solutions
- Nicotine utilized in research and manufacturing
- Legacy pesticides
- Prescription nicotine (e.g., nasal spray, inhaler)
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Determining Generator Category (§262.13)

Generator category is based on the amount of hazardous waste generated per calendar month. Generator category is important because it determines the regulatory requirements the site might abide by when managing hazardous waste. Please be aware that all hazardous waste must be counted when determining a site’s generator category, not just nicotine and nicotine-containing waste. Also remember that nicotine is an acute hazardous waste, and only small quantities are allowed to be generated before a site is subject to the most stringent requirements. If your site generates both acute hazardous waste and non-acute hazardous waste, calculate the monthly generation rate for both and then apply the more stringent generator category requirements towards the management of all hazardous waste generated and accumulated.

When a site generates P075 nicotine-related hazardous waste, the site will be a very small quantity generator (VSQG) or a large quantity generator (LQG) of hazardous waste with respect to acute hazardous waste. Please refer to the table below for generation and accumulation limits.

Note that exceeding the accumulation limits for hazardous waste and/or acute hazardous waste – such as nicotine waste – may require a generator manage all hazardous waste under more stringent hazardous waste requirements. These requirements are discussed within the [Hazardous Waste Accumulation Limits](#) section of this fact sheet.

Unsalable Products

When counting wastes to determine a site’s generator category, if a generator intends to return unsalable nicotine-containing products to a reverse logistics center, the nicotine-containing products are not a solid waste and do not need to be counted toward your site’s generator status. However, be aware that the product must be accumulated and managed as if the item has value as a used, reused, or reclaimed product. Items that have no reasonable expectation to be lawfully accepted by a reverse logistics center become a solid waste and an accurate hazardous waste determination is required to be

made. If the waste is determined to be hazardous waste, the weight of the waste must be counted towards the site’s monthly generation amount to determine generator category. An example of items that would not have a reasonable expectation of being reused, is confiscated e-cigarettes, vaping devices or e-liquids cartridges/vials accumulated by a school.

Generator Category and Accumulation Limits		
Size:	Monthly Generation Rate:	Maximum Accumulation:
VSQG	≤ 100 kg (~220 lbs)	1,000 kg (~2,200 lbs)
	≤ 1 kg (~2.2 lbs) acute hazardous waste	1 kg (~2.2 lbs) acute hazardous waste
	≤ 100 kg (~220 lbs) acute hazardous waste clean-up residue	1 kg (~2.2 lbs) acute hazardous waste
SQG	100 – 1,000 kg (~220 – 2,200 kg)	6,000 kg (~13,200 lbs)
	≤ 1 kg (~2.2 lbs) acute hazardous waste	6 kg (~13.2 lbs) acute hazardous waste
LQG	≥ 1,000 kg (~2,200 lbs)	No limit
	> 1 kg (~2.2 lbs) acute hazardous waste > 100 kg (~220 lbs) acute hazardous waste clean-up residue	No limit

Empty Containers and Nicotine Residues

When identifying hazardous waste and determining a site’s generator category, know that empty vape pens, e-cigarettes, vaping accessories (e.g., pods, atomizers, coils, etc.) and other containers that once held nicotine-containing products cannot be thrown into the trash. Containers and equipment that once held an acute hazardous waste must be “RCRA-empty” prior to being exempted from hazardous waste regulation; however vaping devices, e-cigarettes and other delivery devices that once held nicotine-containing substances cannot ever meet the standards to be considered RCRA-empty. Therefore, these wastes must be managed as acute hazardous waste and counted towards generator category.

If your site generates non-vaping related containers that once contained nicotine substances or came into contact with nicotine-containing substances, there are options within §261.7(b)(3) to render the container RCRA-empty. The most common option employed is triple rinsing containers with water. Triple rinsing requires a site to rinse the container with an water and capture the rinse water (“rinsate”) in a container instead of pouring it down the drain. This process is completed a total of three times.

Once the triple rinsing is complete, the container is considered RCRA-empty and is not regulated as hazardous waste. The generated rinsate is required to be managed as a hazardous waste because it contains nicotine, with the weight of the rinsate being counted towards a site's generator category. Please be aware that triple rinsing of containers associated with commercially retail packaged vaping devices and vaping accessories is not permissible.

When calculating monthly hazardous waste generation amounts, only the weight of the residue or liquid remaining within a container, not the weight of the container itself, is required to be counted. However, if it is easier, you may count the combined weight of the container and residue within. Be aware that you cannot alternate how you count hazardous waste when determining your site's generator category, meaning you must either count only the weight of the residues or count the full weight of the containers and the residues.

Nicotine Hazardous Waste Management

When accumulating nicotine waste on-site:

All generators must:

- Store waste in containers that prevents the release of the waste to the environment.
- Keep waste containers closed unless adding or removing waste.
- Maintain accumulation containers in good condition.
- Label containers:
 - VSQG – use the words “Hazardous Waste” or “Waste” and a description of the contents (e.g., Waste Nicotine, Waste Vape Pens).
 - SQG and LQG – use the phrase “Hazardous Waste” and indicate the hazards of the waste, e.g., toxic.
 - SQG and LQG – when accumulated in, or moved to, a central accumulation area (CAA), mark the container with the accumulation start date.
- Maintain accumulation limits:
 - VSQG – never accumulate more than 1 kg of acute hazardous waste to maintain VSQG status and be able to comply with VSQG provisions.
 - SQG – do not accumulate waste for longer than 180 days from date of generation.
 - LQG – do not accumulate nicotine waste for more than 90 days from the day the waste was generated.

Shipping hazardous waste off-site:

- Nicotine hazardous waste must be shipped to a treatment, storage, or disposal facility (TSDF) by a Delaware permitted hazardous waste transporter.
 - If a VSQG, waste consolidation at a LQG under the control of the same person is permissible provided the criteria in §262.14(a)(6)(viii) and §262.17(f) are met.
- Maintain records documenting waste shipments for at least three (3) years. SQGs and LQGs must utilize a

hazardous waste manifest. VSQGs may use a manifest or other documentation (e.g., bill of lading, tolling agreement).

Hazardous Waste Accumulation Limits

Exceeding the accumulation limits for hazardous waste requires the generator to manage all hazardous waste under more stringent hazardous waste requirements. The most common occurrence of exceeding accumulation limits occur at VSQGs, especially those who generate acute hazardous waste such as nicotine.

When a VSQG accumulates more than 1 kilogram (2.2 pounds) of nicotine waste, they must immediately manage all hazardous waste - nicotine-containing or otherwise - in accordance with the more stringent requirements of §262.14(a)(4). Some of the more stringent requirements include the need to:

- Ship all accumulated nicotine waste offsite within 90 days of the date the 1-kilogram accumulation limit was exceeded.
- Label accumulation containers with the words “Hazardous Waste” and the hazards of their contents.
- Provide secondary containment for accumulation containers.
- Conduct weekly inspections of accumulation areas.
- Train personnel on the safe handling of hazardous waste.
- Develop/implement an emergency preparedness plan.

Obtaining an EPA Identification Number

SQGs and LQGs of hazardous waste must complete a RCRA Subtitle C Site Identification (Notification) Form (EPA Form 8700-12) to obtain an EPA ID number. There is no cost to obtain the EPA ID number. VSQGs are encouraged to obtain an EPA ID number, although it is not required. The notification form and instructions are available on the CAPS notification and reporting webpage at dnrec.alpha.delaware.gov/waste-hazardous/management/hazardous/reporting.

This fact sheet is a summary provided as a courtesy to businesses. It is not intended as a substitute for 7 DE Admin. Code 1302, Delaware's *Regulations Governing Hazardous Waste* (DRGHW), Parts 260-266, 268, 273 and 279. regulations.delaware.gov/AdminCode/title7/1000/1300/1302/



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