



Vaping Liquids, E-cigarettes, and Nicotine Wastes

Guidance for businesses handling nicotine-containing wastes

Vaping liquid, the solution used in electronic cigarettes is also known as E-liquid, E-juice, E-fluid, or liquid nicotine. Discarded vaping liquid may present a significant risk to human health and the environment if improperly disposed. Other nicotine-containing wastes, including electronic cigarettes themselves (E-cigarettes), nicotine gum and nicotine patches, also present health and safety risks.

Businesses and government agencies handling any of these wastes must comply with the hazardous waste requirements administered by the Minnesota Pollution Control Agency (MPCA) and the metropolitan counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington (Metro Counties).

You may find more information regarding hazardous waste requirements in Minnesota on the MPCA's website at <https://www.pca.state.mn.us/waste/hazardous-waste-documents-and-forms>.

How are nicotine wastes regulated?

Any waste discarded by a business or government agency that contains any concentration of nicotine may be considered an acute hazardous waste in Minnesota. Examples of these wastes include:

- Vaping liquid that contains nicotine.
- [Shipping or storage containers or E-cigarette cartridges](#) that held nicotine or nicotine-containing vaping liquid that have not been triple-rinsed, even if they look empty.
- Rinsewater from rinsing nicotine and vaping liquid containers.
- Vaping liquid spill cleanup materials.
- E-cigarettes, whether used or not, unless the vaping liquid reservoirs have been removed.
- Unused nicotine gum.
- Unused nicotine patches.

There is no minimal amount or concentration of nicotine-containing material that is exempt from regulation.

What hazardous waste requirements must I meet?

To help explain the basic hazardous waste requirements in Minnesota, the MPCA has divided them into ten individual steps, known as the 10+ Steps to Compliance.

Step 1: Evaluate your waste.

You must either:

- Assume that each of your nicotine-containing wastes is a P075 acute hazardous waste.
- Examine each of your nicotine-containing wastes and document that it is not a hazardous waste. That process is called *evaluation*. It is rare to be able to evaluate a nicotine-containing waste as non-hazardous.

If you do not evaluate and document that a nicotine-containing waste is non-hazardous, you must accumulate and dispose of it as a P075 acute hazardous waste.

For more information about evaluating nicotine-containing wastes, see MPCA fact sheet #w-hw2-02, P List of Acute Hazardous Wastes & Managing Acute Hazardous Wastes, at <https://www.pca.state.mn.us/sites/default/files/w-hw2-02.pdf>.

Step 2: Determine your generator size.

The length of time and amount of nicotine-containing waste you may accumulate at your site is determined by your site's hazardous waste generator size. Generator size is determined by counting the amount of waste your site generates in a month. When counting nicotine-containing waste, you only need to count the contents or residue in a container, E-cigarette, or packaging; you do not need to count the weight of the container, E-cigarette, or packaging.

If you generate in a calendar month:	Then:
Less than 1 kilogram (2.2 pounds or about 1 liter) of nicotine-containing waste AND never accumulate more than 1 kilogram of nicotine-containing hazardous waste at one time, not counting satellite accumulation	Your site is a Very Small Quantity Generator (VSQG), but must meet the employee training and emergency preparedness requirement of a Small Quantity Generator (SQG)
Less than 1 kilogram of nicotine-containing waste BUT do accumulate more than 1 kilogram of nicotine-containing hazardous waste at one time, not counting satellite accumulation	Your site is a VSQG, but must meet all requirements applicable to a Large Quantity Generator (LQG)
More than 1 kilogram of nicotine-containing waste	Your site is an LQG

Note: Sites generating nicotine-containing wastes are ineligible to be Minimal Quantity Generators (MiniQGs).

Step 3: Obtain a Hazardous Waste Identification Number (HWID).

Any Minnesota business or government agency generating nicotine-containing waste must have a Hazardous Waste Identification Number (HWID) – also known as an *EPA ID Number*.

To get your free HWID, use the MPCA's e-Services. See MPCA fact sheet #w-hw5-12, Notification of Regulated Waste Activity, at <https://www.pca.state.mn.us/sites/default/files/w-hw5-12.pdf>.

See MPCA fact sheet #w-hw1-03, Obtain a Hazardous Waste Identification Number, at <https://www.pca.state.mn.us/sites/default/files/w-hw1-03.pdf> for detailed guidance about HWIDs.

Step 4: Complete a hazardous waste generator license application.

Any Minnesota business or government agency generating nicotine-containing waste must apply for an annual hazardous waste generator license.

The MPCA sends out application reminders each July. Metro County licensing schedules vary by county.

The MPCA's annual license fees are based on the amount of hazardous waste generated in the previous calendar year and vary according to generator size. Metro County annual fees vary by county.

Businesses or government agencies generating nicotine-containing waste outside the Metro Counties may apply for their license at any time using MPCA fact sheet #w-hw5-13, Hazardous Waste Generator License Application, at <https://www.pca.state.mn.us/sites/default/files/w-hw5-13.pdf>. Metro County sites must contact their county to determine their application process.

Step 5: Accumulate your nicotine-containing waste at your site.

Accumulate nicotine-containing waste in containers that are compatible with the waste and are able to fully contain the waste, even when dropped or overturned. *Compatible* means the waste will not corrode or degrade the container. Keep containers closed and manually secured except when waste is being added to or removed from a container. Do not rely on gravity to secure container lids or closures.

Label each hazardous waste container with:

- The words 'Hazardous Waste'.
- A clear description of the waste that identifies it and its risks to employees and emergency responders.
- The accumulation start date the day the waste was first placed in the container.

Note: Satellite accumulation containers do not have an accumulation start date.

Keep your containers in an area that will hold all the contents of any container if it leaked. Ensure the floor under the containers does not have any cracks or open floor drains. Allow enough room around each container to ensure you can get to it with emergency equipment without having to move other containers or materials. Perform and document weekly inspections of your hazardous waste containers unless they are satellite accumulation containers under daily control of the operator. You may accumulate nicotine-containing waste on your site up to the volume and time limits in the table below.

If your site is a:	You may accumulate up to:	For up to:
VSQG	1 kilogram of nicotine-containing waste, not counting satellite accumulation	Indefinitely
LQG	any amount of nicotine-containing waste	90 days from the accumulation start date

Step 6: Dispose or transport your nicotine-containing waste for disposal.

Never place nicotine-containing wastes into the normal trash.

If your site is a:	Then you may manage your nicotine-containing waste by:
VSQG	<ul style="list-style-type: none"> Self-transport to a Very Small Quantity Generator Collection Program (VSQGCP) that has agreed to accept nicotine-containing waste. See MPCA fact sheet #w-hw2-51, VSQG Collection Requirements, at https://www.pca.state.mn.us/sites/default/files/w-hw2-51.pdf. <p>Or any of the management methods below.</p>
LQG	<ul style="list-style-type: none"> Shipment to a permitted hazardous waste treatment, storage, or disposal facility (TSDF). You must use a uniform hazardous waste manifest. See MPCA fact sheet #w-hw1-07, Manifest Shipments of Hazardous Waste, at https://www.pca.state.mn.us/sites/default/files/w-hw1-07.pdf. Shipment to a legitimate recycling facility, such as a facility that processes E-cigarettes to remove the residual nicotine for later reuse. You must use a uniform hazardous waste manifest. See MPCA fact sheet #w-hw2-42, Recycling Hazardous Waste, at https://www.pca.state.mn.us/sites/default/files/w-hw2-42.pdf. Use as an eligible feedstock, such as to actually reuse the nicotine for new vaping liquid. If reused off-site, a uniform hazardous waste manifest is not needed for shipment. See MPCA fact sheet #w-hw2-42, Recycling Hazardous Waste, at https://www.pca.state.mn.us/sites/default/files/w-hw2-42.pdf. Discharge of liquids, such as vaping liquid or rinsewater to the sanitary sewer. Pre-notification to the receiving publicly owned treatment works (POTW, commonly known as a sewage treatment plant) is required. The POTW may prohibit or limit the discharge to their system. For healthcare providers and pharmacies discarding approved nicotine-containing pharmaceutical products such as nicotine patches, lozenges, or gum, shipment through the established pharmaceutical reverse distribution system to a distributor licensed by the Minnesota Board of Pharmacy under the conditions explained in MPCA fact sheet #w-hw3-36b, Reverse Distribution of Pharmaceuticals, at https://www.pca.state.mn.us/sites/default/files/w-hw3-36b.pdf.

Step 7: Document your hazardous waste shipments.

If your waste shipment requires use of a hazardous waste manifest, ensure that all the information on the manifest is correct before your waste leaves your site. See MPCA fact sheet #w-hw1-07, Manifest Shipments of Hazardous Waste, at <https://www.pca.state.mn.us/sites/default/files/w-hw1-07.pdf> for detailed guidance.

If you are a VSQG and self-transport your waste to a VSQGCP, ensure that you meet all applicable requirements of the U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR). See MPCA fact sheet #w-hw2-53, Requirements for Transporting Waste to a VSQG Collection Program, at <https://www.pca.state.mn.us/sites/default/files/w-hw2-53.pdf>.

**Step 8: Plan for emergencies; and
Step 9: Train your employees.**

Your site's emergency planning and training requirements depend on your generator size from [Step 2](#) on page 2.

If your site is a:	Then for:
VSQG, but must meet SQG employee training and emergency preparedness requirements	<ul style="list-style-type: none"> • Hazardous waste emergency planning guidance, see: https://www.pca.state.mn.us/sites/default/files/w-hw1-08b.pdf • Hazardous waste employee training guidance, see: https://www.pca.state.mn.us/sites/default/files/w-hw1-09b.pdf
VSQG, but must meet LQG employee training and emergency preparedness requirements	<ul style="list-style-type: none"> • Hazardous waste emergency planning guidance, see: https://www.pca.state.mn.us/sites/default/files/w-hw1-08c.pdf
LQG	<ul style="list-style-type: none"> • Hazardous waste employee training guidance, see: https://www.pca.state.mn.us/sites/default/files/w-hw1-09c.pdf

Step 10: Keep records.

In general, you must keep any hazardous waste-related record for a minimum of three years after the record is no longer active. As your best protection against liability, the MPCA further recommends that you keep your hazardous waste records for the life of the business. Records may be kept in hardcopy or electronic form.

See MPCA fact sheet #w-hw1-10, Keep Hazardous Waste Records, at <https://www.pca.state.mn.us/sites/default/files/w-hw1-10.pdf> for detailed guidance.

What is satellite accumulation?

Satellite accumulation of hazardous waste allows you to accumulate up to one quart of nicotine-containing waste without attaching an accumulation start date to the containers or counting towards the on-site accumulation threshold of one kilogram. Count just the volume of the contents or residue in a container towards the one quart limit. You may use a reasonable, documented estimation for the volume if it is impractical to measure.

Satellite accumulation containers must either be:

- Within the immediate working area of the process generating the waste and under the direct physical and visual control of the operator of that process.
- Inspected each calendar week and records kept, just like standard accumulation containers.

All hazardous waste container requirements discussed in this fact sheet, other than inspections and accumulation start date, apply to satellite accumulation containers. Even if you are accumulating all the nicotine-containing waste on-site as satellite accumulation, you must still meet the SQG employee training and emergency preparedness requirements.

Note: Though employees at SQGs and LQGs working solely with satellite accumulation containers with no other hazardous waste duties (such as evaluation or inspections) are exempted from hazardous waste employee training requirements, the MPCA still encourages such employees to be trained, as it is the best way to avoid improper hazardous waste management.

How are other parts of E-cigarettes regulated?

E-cigarettes and other electronic nicotine delivery systems (ENDS) commonly consist of a vaping liquid reservoir, either in a refillable or one-use chamber or a replaceable cartridge; an atomizer containing a heating element; electronics to activate the atomizer and any visual effects; and a battery to power the atomizer. Many E-cigarettes now use an integrated cartomizer that combines the cartridge and atomizer.

The majority of E-cigarette batteries, though lithium-based, are significantly less than nine volts and are not considered hazardous wastes in Minnesota.

Caution: Even non-hazardous batteries can short and spark a fire if improperly handled or disposed. The heating elements in discarded E-cigarettes can also be inadvertently activated and start a fire. The MPCA recommends you ensure batteries are removed or discharged before discarding E-cigarettes.

Though the heating element and electronics may rarely contain small amounts of heavy metals, including cadmium, lead, or silver, the MPCA does not require discarded E-cigarettes to be managed as electronic wastes.

What about 'empty' containers that held vaping liquid or nicotine solution?

The residues in containers that held nicotine-containing vaping liquid or nicotine solution remain regulated until the containers have been rinsed three times, called *triple-rinsing*, even if they look empty or nothing drips out of them. The rinsewater from triple-rinsing is a regulated nicotine-containing waste and must be counted towards your generator size, though it may be discharged to the sanitary sewer if the POTW is notified first. See [Step 6: Dispose or transport your nicotine-containing waste for disposal](#) on page 3. You may not throw vaping liquid containers or E-cigarette reservoirs into the normal trash unless you have first triple-rinsed them.

Are used nicotine patches and chewed nicotine gum regulated?

Nicotine patches that have been applied to a user's skin and nicotine gum that has been chewed are both considered used, and are not acute hazardous wastes or subject to the hazardous waste requirements.

Since vaping liquid is intended to be vaporized during use, leftover vaping liquid is not considered used, even if it is in an E-cigarette that has been used.

How can nicotine-free vaping liquid be managed?

You may assume that vaping liquid that does not contain any nicotine is not a hazardous waste in Minnesota. Nicotine-free vaping liquid may be sewerred or solidified and placed into the normal trash.

However, for vaping liquid that you are unsure contains nicotine or not, you must assume it contains nicotine and is an acute hazardous waste unless you document that it is not.

More information

Guidance and requirements in this fact sheet were compiled from Minnesota Rules, Chapter 7045. To review Minnesota Rules, visit the Office of the Revisor of Statutes at <https://www.revisor.mn.gov/pubs>.

For information about waste minimization, contact the Minnesota Technical Assistance Program (MnTAP). The MPCA's Small Business Environmental Assistance Program can offer free, confidential compliance assistance. Immediately report all hazardous waste spills that reach the environment to the Minnesota Duty Officer.

Metro County Hazardous Waste Offices

Anoka	763-422-7093
.....	https://www.anokacounty.us/
Carver	952-361-1800
.....	http://www.co.carver.mn.us/
Dakota	952-891-7557
.....	https://www.co.dakota.mn.us/
Hennepin	612-348-3777
.....	http://www.hennepin.us/
Ramsey	651-266-1199
.....	https://www.ramseycounty.us/
Scott	952-496-8475
.....	http://www.scottcountymn.gov/
Washington	651-430-6655
.....	https://www.co.washington.mn.us/

Minnesota Pollution Control Agency

Toll free (all offices)	1-800-657-3864
All offices	651-296-6300
.....	https://www.pca.state.mn.us/

Minnesota Duty Officer

Toll free	1-800-422-0798
Metro	651-649-5451

Small Business Environmental Assistance Program

Toll free	1-800-657-3938
Metro	651-282-6143
.....	https://www.pca.state.mn.us/sbeap/

Minnesota Technical Assistance Program

Toll free	1-800-247-0015
Metro	612-624-1300
.....	http://www.mntap.umn.edu