

# Focus on: Treatment by Evaporation

The regulations require that sites treating dangerous waste [obtain a permit](#).<sup>1</sup> However, Ecology allows generators to conduct certain types of waste treatment in accumulation tanks and containers. This focus sheet explains how to treat your waste through on-site evaporation.

You don't need a permit or written approval to evaporate certain dangerous wastes if you comply with this guidance and our [Focus On: Treatment by Generator](#)<sup>4</sup> publication. However, you must notify us using the [Site Identification Form](#).<sup>2</sup> When you complete the form, update the Treatment by Generator (TBG) box in the State Waste Activities section, and add the TBG activities in the Comments section of the form.

Ecology may require your site to stop treatment activities if the process poses a threat to public health or the environment. For more details about treatment by generator, see the [generator requirements](#)<sup>5</sup> in the [Dangerous Waste Regulations](#).<sup>6</sup>

## What is evaporation?

Evaporation is when you:

- Vaporize water from inorganic liquids, slurries, and sludges.
- Dewater certain waste streams, which reduces the weight and volume of the waste.

Under this treatment option, generators reduce their overall amount of dangerous waste; however, evaporation **doesn't** treat the waste to meet land disposal restriction treatment standards. You must properly designate and dispose of the remaining residue as dangerous waste. The concentrated sludge will maintain its original dangerous waste codes and may have higher concentrations of metals than the original dangerous waste. As such, add further dangerous waste codes to the treated residuals, if needed.

## How does evaporation work?

There are three methods of evaporation:

- **Natural:** Evaporation caused naturally.
- **Direct contact:** Evaporation caused when a heating source is in contact with the liquid.

### Related information

- [Dangerous waste treatment by generator webpage](#)<sup>3</sup>
- [Focus on: Treatment by Generator](#)<sup>4</sup>

<sup>1</sup> <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Dangerous-waste-permits>

<sup>2</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/ECY070133.html>

<sup>3</sup> <https://ecology.wa.gov/regulations-permits/guidance-technical-assistance/dangerous-waste-guidance>

<sup>4</sup> <https://apps.ecology.wa.gov/publications/summarypages/2004017.html>

<sup>5</sup> <https://app.leg.wa.gov/WAC/default.aspx?cite=173-303-170>

<sup>6</sup> <https://apps.leg.wa.gov/wac/default.aspx?cite=173-303>

- **Indirect:** Evaporation caused by applying heat without the heating source directly contacting the liquid.

## When can I use evaporation?

This treatment may be appropriate for dewatering and reducing the volume of certain inorganic wastes, such as **water-based** (aqueous) solutions with heavy metals. You can't treat wastes containing organic constituents, such as methylene chloride or other solvents, in an evaporation system. Ecology considers evaporation of these wastes to be illegal disposal and it isn't permitted under the Dangerous Waste Regulations. Are you unsure what organic or inorganic chemicals are in your waste stream? Have it tested and designated. [Visit our website for designation resources.](#)<sup>7</sup>

## Criteria

You may treat your waste by evaporation if you:

- Treat only aqueous inorganic wastes. Examples include spent caustics, rinse waters, metal sludge, and water-based machining coolants.
- Don't evaporate organic solutions, such as solvents, paints, or oils.
- Don't evaporate to dryness or "overcook."
- Don't produce uncontrolled toxic mists, fumes, dusts, or gases.
- Inspect the treatment unit routinely for deterioration to avoid any releases. If you observe deterioration, conduct repairs promptly.
- Maintain a treatment log showing the dates and amounts of waste treated.
- Properly designate and dispose of remaining sludge.
- Meet secondary containment requirements.
- Decontaminate all equipment as needed.
- Meet all other requirements in our [Focus-On: Treatment by Generator](#)<sup>8</sup> publication.
- Comply with all applicable federal, state, and local regulations.

## Other regulatory requirements

When treating dangerous waste in containers or tanks to meet [land disposal restriction](#)<sup>9</sup> standards, you must comply with [40 CFR section 268](#).<sup>10</sup> This includes developing a [waste analysis plan](#).<sup>11</sup> You must comply with the [Dangerous Waste Regulations](#),<sup>12</sup> including:

- Properly designating waste.
- Following all accumulation standards for tanks and containers.
- Meeting labeling and handling requirements.
- Meeting reporting standards.
- Meeting spill and discharge requirements.

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<sup>7</sup> <https://ecology.wa.gov/designation>

<sup>8</sup> <https://apps.ecology.wa.gov/publications/summarypages/2004017.html>

<sup>9</sup> <https://www.epa.gov/hw/land-disposal-restrictions-hazardous-waste>

<sup>10</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-268#part-268>

<sup>11</sup> <https://www.epa.gov/sites/default/files/2015-04/documents/tsdf-wap-guide-final.pdf>

<sup>12</sup> <https://apps.leg.wa.gov/wac/default.aspx?cite=173-303>

- Complying with all applicable federal, state, and local regulations.

## Evaporation examples

### Scenario 1

A plating shop generates large amounts of wastewater that designates for lead (waste code D008). The waste is stored in an open-topped tank located in a Central Accumulation Area (CAA). Employees reduce the quantity of waste by evaporating water using heat and an agitator. The generator is careful to manage the heat, so the waste does not boil. They label the tank as “dangerous waste” and “toxic,” with the original accumulation date of the dangerous waste. Employees record the dates and waste amounts on a treatment log to determine their monthly generator category and report the waste stream on their Dangerous Waste Annual Report.

### Scenario 2

A laboratory generates wastewater that designates for chromium (waste code D007). They reduce the volume of the waste using glass containers in a fume hood CAA on heat plates with magnetic stirrers that agitate the waste. Reducing the heat so the waste does not boil, they use markers to label the sides of the glass container with the original accumulation date of the dangerous waste, and the words “dangerous waste” and “toxic.” Employees record the dates and waste amounts on a treatment log to determine their monthly generator category and report the waste stream on their Dangerous Waste Annual Report.

## Where can I learn more?

For more information, please contact a dangerous waste specialist in your region’s office.

### Southwest Regional Office: 360-407-6300

Counties: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum

### Northwest Regional Office: 206-594-0000

Counties: Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom

### Industrial Section: 360-407-6916

### Central Regional Office: 509-575-2490

Counties: Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima

### Eastern Regional Office: 509-329-3400

Counties: Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman

### Nuclear Waste Program: 509-372-7950

## ADA Accessibility

To request an ADA accommodation, contact Ecology by phone at 360-407-6700 or email at [hwtrpubs@ecy.wa.gov](mailto:hwtrpubs@ecy.wa.gov), or visit [ecology.wa.gov/accessibility](https://ecology.wa.gov/accessibility). For Relay Service or TTY call 711 or 877-833-6341.