

Focus On: Treatment by Generator



Why does it matter?

The Dangerous Waste Regulations ([Chapter 173-303 WAC](#))¹ are designed to make sure we manage dangerous wastes in a way that protects our health and the environment.

The Department of Ecology promotes waste treatment by generators to encourage on-site waste reduction and waste management. This helps reduce risks associated with transporting dangerous waste and transferring risk to other communities.

Contact information

Central Regional Office:
509-575-2490

Eastern Regional Office:
509-329-3400

Northwest Regional Office:
206-594-0000

Southwest Regional Office:
360-407-6300

ADA Accessibility

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



Figure 1: Drums containing dangerous waste, properly labeled and stored safely while waiting for disposal or treatment by generator.

What is treatment by generator?

If your facility is a large or medium quantity generator, you may be able to treat your own waste on site without getting a dangerous waste treatment permit. Treatment by generator (TBG) requirements² are the methods you must follow to treat dangerous waste or special waste on site for shipment or disposal.

Commonly accepted methods for treating waste include:

- Aldehyde Deactivation
- Carbon adsorption
- Elementary neutralization
- Evaporation
- Filtration
- Polymerization
- Separation
- Solidification and stabilization

Can small quantity generators treat waste?

Small quantity generators may treat their own waste if they follow Ecology's guidance in the [Small Quantity Generators Treating Dangerous Waste](#)³ publication. Small quantity generators that don't follow this guidance will be subject to a TSD permit.

¹ <http://bit.ly/173-303>

² WAC 173-303-170(2)(b)

³ <https://bit.ly/SQGsTreatingDW>

Definition of treatment

Treatment is when dangerous waste is processed physically, chemically, or biologically to make it non-dangerous or less dangerous, safer for transport, recoverable for energy or material resources, safer for storage, or reduced in volume. More details, including exceptions, are available in the [dangerous waste regulations](#) (WAC 173-303-040).⁴

Requirements

You must follow these requirements:

- Treat wastes only in containers, tanks, or containment buildings.⁵
- Use containers that meet all container standards.⁶
- Use tanks that meet all tank standards.⁷
- Use containment buildings that meet all containment buildings standards.⁸
- Meet all conditions for exclusion that apply to your facility's dangerous waste generator category.⁹

Treatment **must not**:

- Use a process involving thermal treatment.
- Involve applying waste to the land or mixing it into the soil (land treatment).
- Use detonation or open burning.
- Allow extreme heat or pressure to be generated.
- Cause a fire, explosion, or violent reaction.
- Produce uncontrolled toxic mists, fumes, dusts, or gases.
- Produce uncontrolled flammable fumes or gases.
- Threaten to damage the structural integrity of the facility or the device containing the waste.
- Threaten human health or the environment.



Figure 2: Workers treat dangerous waste.

⁴ <https://bit.ly/173-303-040>

⁵ WAC 173-303-170(2)(b)(v) defines an exception for special waste.

⁶ WAC 173-303-172(5) and WAC 173-303-200(3)

⁷ WAC 173-303-172(6) and WAC 173-303-200(4)

⁸ WAC 173-303-172(8) and WAC 173-303-200(6)

⁹ WAC 173-303-172, -174, -200

Treatment by generator in central accumulation areas

Because treatment has inherent risk, all TBG activities must take place in a central accumulation area (CAA) where there are additional requirements such as weekly inspections and secondary containment. You cannot treat your waste in a satellite accumulation area (SAA).

You are not limited to the number, location, or size of CAAs on your site, as long as you meet the applicable requirements. You may treat at or near the point of generation if you follow all CAA rules¹⁰ where treatment occurs. This can be done by clearly marking boundaries between an SAA and CAA.

Example in a laboratory setting

You accumulate waste from an analytical machine in a fume hood, following the satellite accumulation rules. In the fume hood, the area around the SAA container is taped off, clearly marking where satellite accumulation occurs. When this container is full, you move it from the SAA to the CAA in the same fume hood, so you can neutralize.

Example in a hospital setting

You accumulate waste formalin in an SAA. When the container is full, you move it to a nearby dedicated CAA to deactivate and send to a publicly owned treatment works. This CAA can be in the same room, as long as it meets all CAA rules.

Accumulation time limits

All dangerous waste and dangerous waste treatment residue must be shipped off site within the accumulation time limit:

- 90 days for large quantity generators.
- 180 days for medium quantity generators.

Any residues from dangerous waste treatment need to be marked with the date that the original waste's accumulation began. These time limits also apply for multi-stage, multi-vessel processes.

Example of accumulation time limits

A dangerous waste sludge is treated by evaporation in a tank to reduce the volume by removing water. The remaining dry sludge is still a dangerous waste. If the accumulation start date for the wet sludge before treatment is March 9, the start date for the dry sludge after treatment is also March 9. A new accumulation time limit does not begin for the sludge after removing it from the treatment unit.

Reporting and recordkeeping

Waste treatment log

You must maintain a written log of all dangerous waste treated on site, including the dates of treatment and amounts of each dangerous waste treated.

Notification and dangerous waste annual report

Before beginning the treatment process, you must submit a [Site Identification Form](#)¹¹ or revise your existing form to include TBG (checkbox #6 in Section 10e of the form). You must note the type of

¹⁰ For medium quantity generator rules about central accumulation areas, please see WAC 173-303-172. For large quantity generator rules, please see WAC 173-303-200 and 201.

¹¹ <https://bit.ly/DWSiteIDInstructions>

treatment in the comment section (such as neutralization, filtration, solidification and stabilization, carbon adsorption, evaporation, or separation).

Your generator category (medium or large) must include the total quantity of waste generated before treatment (including the weight of any liquids) as well as the weight of any dangerous waste remaining after treatment.

For more information about Dangerous Waste Annual Reporting, call us at 1-800-874-2022 or visit our [Dangerous waste annual report forms webpage](#).¹²

Discharge to sewer after treatment

Sometimes dangerous waste is treated to prepare it for discharge to a sewer under the domestic sewage exclusion or permit by rule.

Domestic sewage exclusion

If a waste is still a dangerous waste after treatment, it must meet domestic sewage exclusion¹³ requirements before it can be discharged to a sewer that leads to a publicly owned treatment works (POTW):

- The waste must be treatable in the POTW where it will be received. Dilution is not acceptable treatment.
- You must have a permit or written authorization from the POTW allowing the discharge of that specific waste.

Permit by rule

If you have a wastewater discharge permit that covers your dangerous waste, treatment process, and resulting discharge to a POTW, the treatment and discharge may be regulated under permit by rule rather than TBG. Please refer to the permit by rule regulations¹⁴ for details and requirements.

The permit by rule requirements also apply to wastes that are treated in a wastewater treatment unit or elementary neutralization unit. They may be discharged to a POTW if the generator has a wastewater discharge permit or authorization.



Figure 3: Our compliance specialists can answer questions about treating your dangerous waste.

¹² [https:// ecology.wa.gov/DWReport](https://ecology.wa.gov/DWReport)

¹³ WAC 173-303-071(3)(a)

¹⁴ WAC 173-303-802(5)

Guidelines for specific types of treatment

Many different types of treatment processes can meet the TBG requirements. A summary of the most common are below, along with links to publications with more information.

Aldehyde deactivation

[Aldehyde deactivation](#)¹⁵ mixes deactivating chemicals with spent aldehydes to reduce toxicity so the aldehydes no longer designate as a dangerous waste.

Carbon adsorption

[Carbon adsorption](#)¹⁶ uses activated carbon to remove components from a liquid or gaseous waste. Carbon adsorption generates a treated waste, spent carbon, and sometimes a backwash effluent waste stream (backwash disengages solids that have been entrapped in the bed). Activated carbon is “spent” when its adsorptive capacity is severely depleted.

Elementary neutralization

[Elementary neutralization](#)¹⁷ reduces a waste’s corrosive properties by raising or lowering the waste’s pH to a more neutral pH range between 6 and 9.

Evaporation

[Evaporation](#)¹⁸ removes water from waste to reduce the dangerous waste’s weight and volume. After the water is evaporated, a smaller residue is left for disposal as dangerous waste.

Filtration

[Filtration](#)¹⁹ drains waste effluents, slurries, and sludge generated from industrial treatment processes to remove undissolved heavy metals present in suspended solids.

Polymerization

[Polymerization](#)²⁰ uses liquid resins to form a solid polymer. Plastic resin wastes can be treated by reacting them with a catalyst to produce a chemically stable hard plastic that is no longer an ignitable dangerous waste.

Separation

[Separation](#)²¹ splits mixtures into individual components of different densities. Treatments could include air floatation, centrifugation, coagulation or flocculation, decanting, emulsion breaking or demulsification, ion exchange, oil skimming or phase separation, precipitation, or sedimentation (or clarification).

Solidification and stabilization

[Solidification](#)²² and stabilization technologies use additives to reduce the mobility or toxicity of pollutants in the waste.

- **Solidification** physically limits the mobility of dangerous waste by reducing or eliminating free liquids.
- **Stabilization** chemically limits the hazard potential of dangerous waste by converting the constituents into a less soluble form.

¹⁵ <https://apps.ecology.wa.gov/publications/SummaryPages/1404003.html>

¹⁶ <https://apps.ecology.wa.gov/publications/SummaryPages/96415.html>

¹⁷ <https://apps.ecology.wa.gov/publications/SummaryPages/96417.html>

¹⁸ <https://apps.ecology.wa.gov/publications/SummaryPages/96414.html>

¹⁹ <https://apps.ecology.wa.gov/publications/SummaryPages/96413.html>

²⁰ <https://apps.ecology.wa.gov/publications/SummaryPages/1404002.html>

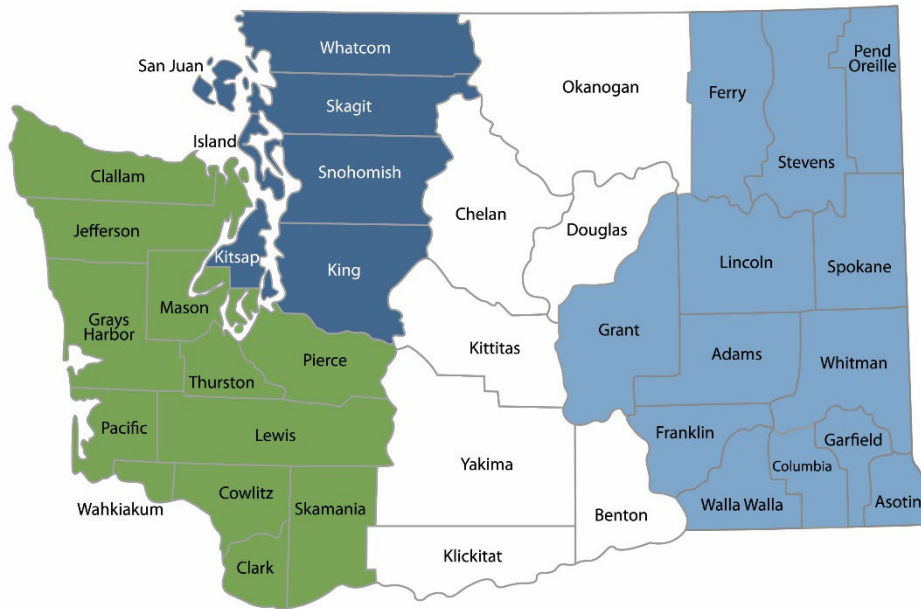
²¹ <https://apps.ecology.wa.gov/publications/SummaryPages/96418.html>

²² <https://apps.ecology.wa.gov/publications/SummaryPages/96416.html>

Get help

For assistance, please contact a dangerous waste specialist at one of the following Ecology offices.

Department of Ecology Regional Offices



Southwest Region
360-407-6300

Northwest Region
206-594-0000

Central Region
509-575-2490

Eastern Region
509-329-3400

Southwest Regional Office, Lacey: 360-407-6300

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

Northwest Regional Office, Shoreline: 206-594-0000

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

Central Regional Office, Union Gap: 509-575-2490

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

Eastern Regional Office, Spokane: 509-329-3400

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