Focus on: Small Quantity Generators Treating Dangerous Waste

Small quantity generators may treat dangerous waste under certain conditions. Photo credit: Yeko Photo Studio

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Generators may accumulate and treat dangerous waste on site without a treatment, storage, and disposal (TSD) permit if they meet certain on-site management requirements and treatment rules. This practice is called treatment by generator (TBG).[1]

Small quantity generators (SQGs) may treat their own waste if they follow the guidance in this focus sheet. Visit our generator category[2] webpage to learn how to determine your generator category.

What is Treatment?

Treatment[3] is when dangerous waste is processed physically, chemically, or biologically to make it:

- Nondangerous or less dangerous.
- Safer for transport.
- Recoverable for energy or material resources.
- Safer for storage.
- Reduced in volume.

If your waste doesn't meet the definition of **dangerous waste**[3] following treatment, you no longer need to manage it under the Dangerous Waste Regulations.[4]

[1] https://apps.ecology.wa.gov/publications/summarypages/2004017.html
[2] https://ecology.wa.gov/GeneratorStatus
[3] See definitions in WAC 173-303-040: https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-040
[4] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303

Figure 1: pH strips measure pH levels during elementary neutralization. Photo credit: Honacan on Wikimedia Commons.

Figure 2: Scientist treating small amounts of dangerous waste.

Figure 3: SQGs must use containers that meet all containers standards.

SQG Requirements

If you're an SQG that meets the conditions for exemption[5] and independent requirements, you are subject to fewer regulations.[6] However, you still must follow some of the rules, for example:

- Designate waste promptly at the point of generation.
- Count dangerous waste and determine generator category.
- Manage dangerous waste safely.
- Ensure dangerous waste delivery to an approved facility.[7]
- Submit an annual report and notifying of treatment activities (if assigned an active EPA/State ID Number).
- Stay below monthly generation limits for SQGs **and** total on-site accumulation limits.

Dangerous Waste Treatment Requirements

If you are an SQG, you may treat small amounts of dangerous waste on site under specific circumstances to ensure workplace safety. Comply with the following **six requirements** for treatment. They only apply to the area where you treat the waste—**not** to the entire facility. If you don't follow these requirements, you must obtain a TSD permit to treat dangerous waste on site.

Requirements for Treatment

- Only treat wastes in containers and tanks.[8]
- Use containers that meet all container standards.[9]
- Use tanks that meet all tank standards.[10]
- Maintain a written log of all dangerous waste treated on site, including the **date** of treatment and the **amount** of each dangerous waste treated.[11]
- Label or mark each treatment tank or container with the words "Dangerous Waste" or "Hazardous Waste" and the hazard associated with the waste.[12]
- Establish an emergency coordinator, post dangerous waste emergency information,[13] and respond to any emergencies.[14]

[5] See conditions for exemption in WAC 173-303-171: https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-171.
[6] See independent requirements in WAC 173-303-170(2)(a)(i): https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-170.
[7] WAC 173-030-171(1)(e)(i-ix)
[8] See WAC 173-303-170(2)(b)(iv) for details.
[9] See WAC 173-303-172(5) for details.
[10] See WAC 173-303-172(6) for details.
[11] See WAC 173-303-170(2)(b)(iv)(B) for details.
[12] See WAC 173-303-172(9) for details.
[13] https://apps.ecology.wa.gov/publications/summarypages/0804022.html
[14] See WAC 173-303-172(11–12) for details.

Allowable Treatment Methods

SQGs may only use the following eight Ecology-approved treatment methods to treat dangerous wastes on site.

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 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 pH that is allowed or permitted to be discharged to your publicly owned wastewater treatment works (POTW). Ask your POTW or sewer discharge authority to determine the appropriate pH range for their systems.

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. This type of treatment is only allowed for inorganic wastes.

Filtration

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

Polymerization

Polymerization[20] treats plastic resin wastes 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 (also known as 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

Figure 4: Scientist treating dangerous waste in a lab.

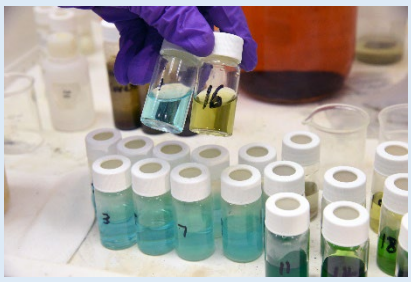


Figure 5: Elementary neutralization is one way small quantity generators can treat their dangerous waste.

Figure 6: SQGs may use separation to treat their dangerous waste. Photo credit: PRHaney on Wikimedia Commons.

Prohibited Treatment Methods

Treatment must **not**:

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

Examples of **illegal** treatment include:

- Evaporating liquid wastes that contain volatile organic compounds.
- Air-drying shop towels contaminated with dangerous waste solvent.

Example: Elementary Neutralization Treatment for an SQG Laboratory

Alpha Lab's waste from acidified samples and acid baths for cleaning glassware has a pH less than 2.0 and is a corrosive dangerous waste (waste code D002). They want to treat these corrosive wastes for sewer disposal. The lab chooses to neutralize their spent acid waste as a TBG activity, taking the following steps:

Notify Ecology

If they have an active EPA/State ID Number, Alpha Lab notifies Ecology of their treatment by generator activity. They also submit a revised Site Identification form to reflect the TBG activity (checkbox #6 in Section 10e of the form).[23]

If the lab doesn't have an active EPA/State ID Number, they don't need to notify.

Post emergency response information

Alpha Lab posts emergency response information near the waste treatment area and communication device(s). This includes:

- Name and telephone number of the site emergency coordinator.
- Phone numbers for the local fire department (or 911), unless there's a direct alarm.
- Location of fire extinguishers and spill control material.

Alpha Lab also trains employees on proper waste handling and emergency procedures, which may include locations of fire extinguishers, fire alarms, and spill control materials.

Accumulate acidic waste safely

Alpha Lab accumulates acidic waste in a container or tank that is:

- Closed.
- In good condition and compatible with the acidic solution.
- Properly labeled with a dangerous waste label and a corrosive hazard label.

Treat acidic waste

Alpha Lab treats acidic waste by adding a neutralizing agent, maintaining a controlled reaction to ensure employee safety.

Maintain a treatment log

Alpha Lab's treatment log includes:

- The date and amount treated for each batch of acidic waste treated.
- The type of acid.
- The acid's beginning and ending pH.
- Initials of the person who treated the waste.

[23] The dangerous waste regulations require SQGs with active EPA/State ID Numbers to notify Ecology whenever they have a change in dangerous waste activity or important information changes, such as company name, ownership, or mailing address. SQGs may also withdraw an unneeded ID number by contacting Ecology at 360-407-6700.

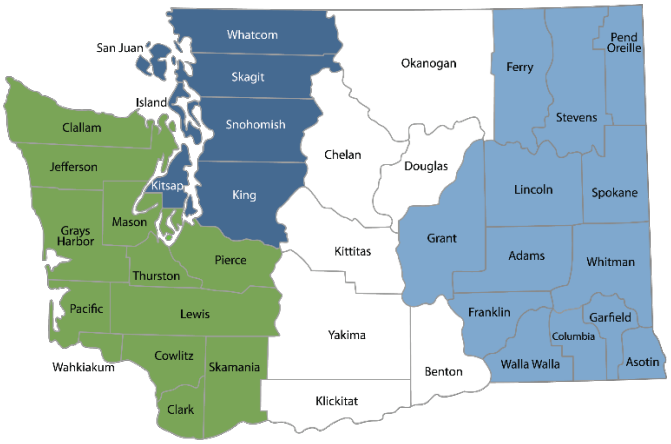
Count all dangerous wastes monthly

Alpha Lab counts pounds of acidic waste treated plus all other dangerous waste generated on site per month. This is how they determine their generator category.[24] To remain an SQG, Alpha Lab stays below monthly generation limits.[25] If the lab exceeds any SQG limits, they will be subject to either medium or large quantity generator requirements.

Find out more

Contact a dangerous waste specialist near you if you are an SQG with questions about treating dangerous waste on site, or if you want to learn more about proper dangerous waste management practices.

Department of Ecology Regional Offices



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Acronyms

Acronyms, their meaning, and page numbers where used in this focus sheet:

EPA: U.S. Environmental Protection Agency. Pages 2, 7.
POTW: Publicly owned wastewater treatment works. Page: 4.
SQG: Small quantity generator. Pages: 2, 7, 8.
TBG: Treatment by generator. Pages: 1, 7.
TSD: Treatment, storage, and disposal. Pages: 1, 2.

[24] See generator category determinations in WAC 173-303-169: https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-169
[25] An SQG generates less than 2.2 pounds of acutely hazardous waste (AHW) or state toxic WT01 extremely hazardous waste (EHW) and less than 220 pounds of total dangerous waste per month. The SQG's total on-site accumulation must remain less than 2,200 pounds of total dangerous waste and 2.2 pounds for AHW and WT01 EHW. Note that spill cleanup materials from "P" listed commercial chemical products and a few "K" listed wastes are also AHW, but have a 220-pound threshold limit.