

# Focus on: Treatment by Filtration

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 filtration.

You don't need a permit or written approval to filter dangerous waste if you comply with this guidance and our [Focus On: Treatment by Generator publication](#),<sup>2</sup> however you must notify us using the [Site Identification form](#).<sup>3</sup>

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>6</sup> in the [Dangerous Waste Regulations](#).<sup>7</sup>

## What is filtration?

**Filtration** is using a filter to:

- Dewater waste effluents, slurries, and sludges generated from industrial treatment processes.
- Remove undissolved heavy metals and suspended solids from liquids using a physical filtration unit.

It doesn't reduce your waste's toxicity.

## How does filtration work?

The most common filtration processes include:

- Rotary drum vacuum filtration, belt filter pressing, plate and frame filter pressing, and bag and cartridge filters. These methods use either negative or positive pressure to move water through filter media, leaving solids behind.
- Granular media filtration. This uses gravity to pass fluid through a bed of granular material, removing heavy metals and suspended solids from the fluid. This removes suspended solids by straining or physical adsorption.

## Related information

- [Dangerous waste treatment by generator webpage](#)<sup>4</sup>
- [Focus On: Treatment by Generator](#)<sup>5</sup>

**Note:** If a liquid waste has a lot of solids, you can use sludge dewatering as an initial step to free liquids and reduce waste volume. Read more about dewatering in our [Separation Techniques Fact Sheet](#).<sup>8</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/2004017.html>

<sup>3</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/ECY070133.html>

<sup>4</sup> <https://ecology.wa.gov/DW-treatment-by-generator>

<sup>5</sup> <https://apps.ecology.wa.gov/publications/summarypages/2004017.html>

<sup>6</sup> <https://app.leg.wa.gov/WAC/default.aspx?cite=173-303-170>

<sup>7</sup> <https://app.leg.wa.gov/WAC/default.aspx?cite=173-303>

<sup>8</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/96418.html>

## When can I use filtration?

Below are some example waste streams you can use filtration on:

- Secondary biological sludge.
- Isopropyl alcohol.
- Water treatment alum sludge.
- Metal hydroxide sludge.
- Oily sludges (for example, from American Petroleum Institute [API] separators and dissolved air flotation [DAF] units).
- Brine sludge.

**Note:** Filtration is generally used after gravity separation or dewatering. It removes additional suspended solids and contaminants before other treatment processes. It also can be used as a polishing step that lowers the levels of suspended solids and associated contaminants in treated wastes.

## Criteria

You may treat your waste by filtration if:

- You make sure the filtration equipment and its connection to the container is entirely enclosed. Make sure it can withstand pressure and is watertight.
- You meet secondary containment requirements.
- You properly designate and handle the dewatered liquid (filtrate) and backwash water stream from the filtration process.
- You properly designate and handle the filter cake (dewatered sludge) or filter media from the filtration process.
- You don't spill or release any waste or vapors from the operation to the environment.<sup>9</sup>
- You decontaminate all equipment as needed.
- You meet all other requirements in our [Focus On: Treatment by Generator publication](#).<sup>10</sup>
- You comply with all applicable federal, state, and local regulations.

## Waste Analysis Plan

When treating dangerous waste in accumulation tanks and containers to meet [Land Disposal Restriction standards](#),<sup>11</sup> you must comply with 40 C.F.R. Part 268. This includes developing a waste analysis plan.<sup>12</sup> For more details about waste analysis, see [WAC 173-303-300](#).<sup>13</sup>

## Permit by Rule

If your filtration process is part of a wastewater treatment operation (regulated by [Permit by Rule](#)<sup>14</sup>), this isn't considered a treatment by generator activity. Instead, the waste treatment is regulated under the Clean Water Act.

<sup>9</sup> You must immediately clean up unintentional spills or releases.

<sup>10</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/2004017.html>

<sup>11</sup> <https://www.epa.gov/hw/land-disposal-restrictions-hazardous-waste>

<sup>12</sup> <https://www.epa.gov/sites/default/files/2015-04/documents/tsdf-wap-guide-final.pdf>

<sup>13</sup> <https://app.leg.wa.gov/WAC/default.aspx?cite=173-303-300>

<sup>14</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/2104014.html>

You must have one of the following water quality permits:

- [National Pollutant Discharge Elimination System \(NPDES\) permit](#).<sup>15</sup>
- [State waste discharge permit](#).<sup>16</sup>
- Pretreatment permit or authorization.

Include each of the waste streams you treat on site in your permit and comply with all Permit by Rule and Clean Water Act requirements.

## Filtration Examples

### Scenario 1

A refinery produces oily sludge from an oil/water separator unit as part of their on-site wastewater treatment system. The sludge is listed under Dangerous Waste No. K051. The refinery will dewater the sludge before transporting it to a permitted incineration facility off site.

They bring in a mobile filter press unit and align it next to the oil/water separator. They pump the sludge through totally enclosed piping into the filtration unit and process it immediately. They transport the sludge to the permitted incineration facility, and the water is hard piped back to the oil/water separator.

### Scenario 2

A laboratory generates spent isopropyl alcohol that designates for ignitability (waste code D001). Employees clean the alcohol by processing it through a gravity fed recycling system that doesn't use any electricity or heat. They collect the clean alcohol for reuse in their laboratory. Once no longer usable, employees remove the dirty filters from the recycling unit and ship them off site as dangerous waste.

## 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](http://ecology.wa.gov/accessibility). For Relay Service or TTY call 711 or 877-833-6341.

<sup>15</sup> <https://apps.leg.wa.gov/wac/default.aspx?cite=173-220>

<sup>16</sup> <https://apps.leg.wa.gov/wac/default.aspx?cite=173-216>