

How to Determine if Your Waste is Hazardous



State of Oregon
Department of
Environmental
Quality

Background

Federal and state of Oregon hazardous waste regulations ensure that the generation, transport, treatment, storage and disposal of hazardous wastes are conducted in a way that protects human health and the environment.

This fact sheet will help you properly identify all wastes that you generate, treat or send off site for recycling, energy recovery or disposal as hazardous waste. For a complete description of waste determination requirements, consult Oregon Administrative Rule 340-101 and the Code of Federal Regulations Title 40, Part 261.

As a waste generator, you must:

- Determine if your waste is hazardous, then
- Ensure your waste is managed properly

Waste management companies may perform or offer to help you, the generator, with your hazardous waste determination, but generators are ultimately responsible for any mismanagement of their hazardous waste. Failure to do an adequate hazardous waste determination is the top violation cited by DEQ hazardous waste inspectors and can lead to mismanagement of your waste, often leading to environmental and human health damage.

Three steps in performing a hazardous waste determination

You need to know:

- Is your material a solid waste?
- If it is a solid waste, is it exempted or excluded from management as a hazardous waste?
- Is the waste a listed, characteristic or state-only hazardous waste?

Step 1: Determine if the material is solid waste

The term “solid waste” is somewhat misleading. The word “solid” does not refer to the physical state of the waste. Solid waste can be a solid, liquid, or contained gas. Under the federal Resource Conservation and Recovery Act, a solid waste is any material that you’ll no longer use for its originally intended purpose and will be discarded, or a material that must be

reclaimed or processed before reuse. For any material to be a hazardous waste, it must first be a solid waste.

Step 2: Determine if the solid waste is exempted or excluded from hazardous waste regulation

Not all solid wastes are hazardous wastes. Certain wastes, such as household wastes or used oil destined for recycling, are exempted or excluded from the hazardous waste definition and regulation.

Don’t proceed to Step 3, which is evaluating the actual chemical or physical hazard a waste poses, until you’ve determined the waste is not somehow excluded from hazardous waste regulation. Wastes excluded or exempted are listed in CFR Title 40, Part 261.4 and 261.6-9, and OAR 340-101-0004.

Note: Even if you’ve determined your waste is excluded from hazardous waste regulation, you should re-evaluate your status periodically to verify that conditions affecting the composition of your waste haven’t changed. You also need to document that exemption or exclusion in your files. (See CFR Title 40, Part 268.7 (a)(7) for these requirements.)

Step 3: Determine if the waste is hazardous

This step involves evaluating the waste against the regulatory definition of hazardous waste. There are three ways your waste can be considered hazardous:

1. If you find your waste isn’t exempted or excluded from hazardous waste regulation, you must determine if the waste meets one or more of the hazardous waste listing descriptions in the Code of Federal Regulations (CFR Title 40, Part 261, Subpart D):

F-listed wastes: 40 CFR 261.31 lists hazardous wastes from non-specific sources (termed “F-listed wastes” after the F prefix in the hazardous waste code). An example is F002 wastes (spent halogenated solvents, such as perchloroethylene, trichloroethylene, methylene chloride).

Hazardous Waste

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K-listed wastes: 40 CFR 261.32 lists hazardous wastes from specific sources, such as K062 waste spent pickle liquor generated by steel finishing operations in the iron and steel industries.

P- and U-listed wastes: 40 CFR 261.33 lists discarded or unused commercial chemical products, off-specification products, container residues and spill residues of such products. Examples of these wastes include the unused commercial chemical products of mercury, potassium cyanide, creosote and phenol.

2. **Characteristic hazardous waste**

If you determine the waste is not listed hazardous waste, you must conduct waste sampling and analysis. Or, you can apply generator knowledge of the process used to produce the waste to determine if it exhibits any of the four characteristics of a hazardous waste:

Ignitability: A waste is ignitable if it:

- Is a liquid and its flash point is less than 140 degrees F (60 degrees C), or
- Is an oxidizer or ignitable compressed gas as defined by U.S. Department of Transportation regulations in 49 CFR Part 173, or
- Has the potential to ignite under standard temperature and pressure, and burn persistently and vigorously once ignited

Wastes exhibiting ignitability are classified as U.S. Environmental Protection Agency Hazardous Waste Code D001. Examples include spent solvents, such as mineral spirits.

Corrosiveness: A waste is corrosive if it is:

- Aqueous and its pH is less than or equal to 2.0 or greater or equal to 12.5, or
- A liquid that corrodes steel at a rate of more than a quarter-inch per year

Wastes exhibiting corrosiveness are classified as EPA Hazardous Waste Code D002. Examples include spent sulfuric acid and concentrated waste sodium hydroxide solutions.

Reactivity: A waste exhibits reactivity if it:

- Is normally unstable and readily undergoes a violent change without detonating
- Reacts violently with water
- Forms potentially explosive mixtures with water

- Produces toxic fumes, gases or vapors when mixed with water in a quantity sufficient to present a danger to the environment
- Is a cyanide- or sulfide-bearing waste that when exposed to a pH between 2.0 and 12.5 produces toxic fumes sufficient to present a danger to the environment
- Is capable of detonation or explosive reaction if it's subjected to a strong initiating source or heated under confinement
- Is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure, or
- Is a forbidden explosive or a Class A or Class B explosive as defined in 49 CFR, Part 173

Wastes exhibiting reactivity are classified as EPA Hazardous Waste Code D003. Examples of reactive wastes include pressurized aerosol cans and certain cyanide- or sulfide-bearing wastes.

Toxicity: The toxicity of a characteristic waste is determined by having a laboratory analyze an extract of the waste using the Toxicity Characteristic Leaching Procedure. Results of the analysis are compared to the regulatory limits of 40 constituents, primarily heavy metals, organic compounds and pesticides/herbicides. If the extract from the leaching procedure contains levels of any of the 40 constituents at or above regulatory limits, the waste is considered hazardous.

Wastes exhibiting toxicity are classified as EPA Hazardous Waste Codes D004 through 043. Examples of toxic wastes include contaminated soils and sludge, waste solvents, paint residues, wastes from chemical manufacturing and pesticide/herbicide wastes.

State-only hazardous wastes

If a solid waste is not excluded/exempted and is not a federal hazardous waste as listed above, it may be a state of Oregon-only hazardous waste. Oregon Administrative Rule 340-101-0033 lists these wastes, which include pesticide residues and mixtures of wastes containing constituents of federal P (3 percent) and U (10 percent) listed wastes. For details, see Code of Federal Regulations Title 40, Parts 261.31 and 261.32.

Waste sampling and analysis

Sampling and analysis of the waste may be necessary to complete the determination when:

- You begin a new process or change an existing one

- You've not provided appropriate laboratory information to an off-site treatment, storage and disposal facility
- You're not able to determine with available information the chemical makeup of your waste stream
- An off-site hazardous waste facility has reason to believe the wastes you shipped were not identified accurately
- EPA amends RCRA waste identification/classification rules, or
- A facility receives your waste for the first time

Waste sampling and analysis is more accurate and defensible than other options such as using knowledge of process (explained below).

Procedures and equipment for obtaining and analyzing samples are in the EPA document "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846, third edition).

DEQ recommends you prepare a sampling and analysis plan before sample collection and testing. See chapters 1 and 9 of the above-listed EPA document for this information.

Note: In making your determination, be sure to include all applicable waste codes, whether it's a listed hazardous waste, characteristic hazardous waste or a combination of both.

Obtain a representative sample

A representative sample is a sample of a universe or whole that can be expected to exhibit the average properties of the universe or whole.

When conducting a sample analysis, you're required to take a representative sample from each waste stream to properly characterize a waste. See EPA document SW-846 (Chapter 9) for methods for statistical determination of a valid number of samples, recommended sampling methods, sampling strategies and applicable sampling equipment.

Generator knowledge of the process or material producing the waste

Another method you may use to determine your waste is *generator knowledge* of the waste. Generator knowledge can be used to meet all or part of the waste analysis requirements and can be broadly defined to include "process knowledge." Process knowledge may be information on the wastes obtained from existing published or documented waste analysis data or studies conducted on hazardous wastes generated

by processes similar to that which generated your waste.

For example, comparing the specific process that generated your waste to those processes described in the listings rather than conducting a chemical/physical analysis of the waste identifies listed wastes. Therefore, with many listed wastes, generator knowledge is appropriate because the chemical/physical makeup of the waste is generally well known and consistent from facility to facility.

Note: From a cost-saving standpoint, use of existing or historical records of analysis may seem preferable compared to conducting sampling and analysis. However, you must ensure that your information reflects current processes and materials being used and that no differences exist between the process in the documented data and your own.

If you use generator knowledge alone or in conjunction with sampling and analysis, you must maintain detailed documentation that clearly demonstrates the information is sufficient to identify the waste.

Documentation to support generator knowledge may include but is not limited to:

- Material safety data sheets or similar documents
- A thorough process description, including data on all raw materials used in the process
- Other forms of detailed documentation

Documenting both the generator knowledge and any analytical data is essential. You must keep information used to make the waste determination for at least three years after the waste is generated.

Note on material safety data sheets:

Manufacturers and suppliers are only required to list constituents that comprise 1 percent or more of the material addressed. This level of information may be inadequate to determine constituent levels on the wastes to be characterized. Therefore, a material safety data sheet should be viewed as a supporting document and not as the sole means of documenting generator knowledge.

Assessing your method/follow-up steps

Conducting sampling and analysis may not be as economical and convenient as using generator knowledge in making a waste determination, but it can have advantages. Because accurate waste determination is such a critical factor for

demonstrating compliance with hazardous waste regulations, misidentification can render your facility liable for enforcement actions regarding land disposal restrictions, annual reporting and other requirements. In addition, accurate waste analysis is critical for meeting requirements of other regulatory programs, such as effluent discharges under the federal Clean Water Act and transportation requirements administered by the U.S. Department of Transportation.

As follow-up steps, be sure you:

- Keep current with the latest changes in hazardous waste regulations that may affect your waste's classification
- Re-evaluate your wastes frequently using current analytical methods and/or process knowledge, particularly any time a new or revised federal or state rule affecting hazardous waste identifications comes into effect.

DEQ technical assistance

DEQ technical assistance is available through free on-site visits, free phone consultations and periodic hazardous waste trainings.

DEQ technical assistance can help you:

- Understand how hazardous waste regulations apply to your business
- Determine which wastes are hazardous
- Complete reporting forms
- Manage wastes more effectively and safely
- Reduce disposal costs
- Minimize the waste you produce
- Determine what areas need improvements

Visit DEQ's hazardous waste program website or contact the DEQ field office nearest you:

Bend Office: 475 NE Bellevue Drive, Suite 110, Bend, OR 97701, 541-388-6146

Eugene Office: 165 East 7th Avenue, Suite 100, Eugene, OR 97401, 541-686-7838

Medford Office: 221 Stewart Ave., Suite 201, Medford OR 97501, 541-776-6262

Pendleton Office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Northwest Region Office: 700 NE Multnomah St., Suite 600, Portland, OR 97232, 503-229-5696

Salem Office: 4026 Fairview Industrial Drive, Salem, OR 97302, 503-378-8240

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011 or email deqinfo@deq.state.or.us.