

How to Make a Hazardous Waste Determination

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Why should I make a Hazardous Waste Determination?

- Hazardous waste laws place primary responsibility on the generator to ensure hazardous wastes are properly managed.

Why should I make a Hazardous Waste Determination?

- Knowing the amount and types of hazardous waste you generate is key to staying in compliance with state and federal regulations.

Who Generates Hazardous Waste?

- Many different types of business and industry generate hazardous waste.
- Large generators tend to be manufactures of various products.
- Small generators tend to be in the service orientated business.

Potential Hazardous Waste Generators

- Chemical Manufactures
- Metal Fabrication
- Fiberglass Fabrication
- Chemical Formulation
- Wood Product Manufactures
- Dry Cleaning
- Metal Plating and Finishing
- Sandblasting Operations
- Pesticide Applicators
- Laboratories
- Vehicle Repair and Maintenance
- Furniture Refinishing
- Textile Manufacturing
- Printing and Related Industries

What is a Hazardous Waste?

- Generally speaking, a material is a waste when it can no longer be used for its intended purpose and it will be disposed, reclaimed, or recycled.
- Hazardous wastes are known to be harmful or potentially harmful to human health or the environment.
- Please keep in mind, there are many wastes that are quite harmful to human health or the environment which are not regulated as hazardous waste (i.e asbestos, PCBs).

How to Make a Hazardous Waste Determination

- Step #1 – Create an inventory of all wastes generated at the facility including all wastes recycled or reclaimed.
- For each waste list the process which generates the waste and the quantity generated each month.

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- Step #2 – Determine if any wastes generated are exempt wastes.
- Listing of exempt waste can be found in 40 CFR 261.4.
 - ◆ Discharged to the POTW or a permitted NPDES outfall
 - ◆ Mining overburden
 - ◆ Household Wastes
 - ◆ Agricultural Waste

How to Make a Hazardous Waste Determination

- Step #3 – Determine if your waste is a *listed* hazardous waste or a *characteristic* hazardous waste.

Listed Hazardous Waste

- Listed hazardous wastes are determined to always be hazardous when generated.
- Listed waste fall under four categories: F-list, K-list, P-list, U-list.

Characteristic Hazardous Waste

- A characteristic hazardous waste is one that exhibits one or more of four characteristics: ignitability, corrosivity, reactivity, and toxicity.

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- If a waste is not a listed waste or is not a characteristic hazardous waste, then it is not regulated as a hazardous waste..... however, all non-hazardous wastes are regulated under Kansas solid waste regulations and must be managed and disposed of properly.

Listed Wastes – the F-List

- Contains hazardous waste from non-specific sources (there are 28 F-coded wastes).
- Contains solvents commonly used in degreasing, metal treatment baths and sludges, wastewaters from metal plating operations, and dioxin containing chemicals and their precursors.

Listed Wastes – the F-List

- Examples of common F-listed solvents: benzene, carbon tetrachloride, methylene chloride, tetrachloroethylene, 1,1,1-trichloroethane, acetone, chlorobenzene, CFC's, cresols, MEK, methanol, xylene, toluene.

Listed Wastes – the K-List

- Manufacturing process waste from specific industry sources.
- Listing descriptions with K-listed wastes are generally very specific and clear.

Listed Wastes – the K-List

- Examples of K-listed manufacturing processes include: wood preservation, pigment production, chemical production, petroleum refining, iron and steel production, explosive manufacturing, and pesticide manufacturing.

Listed Waste – the P-List and U-List

- P-list and U-list wastes contain discarded commercial products, off-spec chemicals, container residues, and residues from chemical spills.
- The main differences between the two lists are the quantities of chemicals regulated.

Listed Waste – the P-List and U- List

- P-listed wastes are acutely hazardous waste regulated at 2.2 lbs/month generation, or when accumulated as a waste in quantities of 2.2 lbs or greater.

Listed Waste – the P-List and U- List

- U-listed wastes are toxic wastes regulated at the same levels of other hazardous wastes contained in the F-list, K-list, and those which are Characteristic.

Examples of P-list and U-list Waste

- P-list: aldrin, calcium cyanide, dieldrin, epinephrine, parathion, tetraethyl lead, toxaphene.
- U-list: acetaldehyde, acetone, benzene, lead acetate, chlorobenzene, DDT, phenol, tetrahydrofuran.

CHARACTERISTIC

- Does the waste meet one of the four characteristics?



Ignitability (D001)
(Less than 140 °F)



Corrosivity (D002)
(pH ≤ 2 or ≥ 12.5)



Reactivity (D003)



Toxicity (D004 – D043)

Characteristic Hazardous Waste – Ignitability (D001)

- A waste is ignitable if it:
 - ◆ is a liquid and has a Flash Point of less than 140 degrees F using an approved Flash Point test;
 - ◆ is a non-liquid that can readily catch fire under standard temperature and pressure, and burns vigorously after ignition so as to create a hazard;
 - ◆ is an ignitable compressed gas or a DOT oxidizer.

Characteristic Hazardous Waste – Ignitability (D001)

- Examples of ignitable wastes: mineral spirits, naphtha, lacquer thinner, epoxy resins, oil based paints, methanol, MEK, acetone.

Characteristic Hazardous Waste – Corrosivity (D002)

- A waste is corrosive if:
 - ◆ it is an aqueous waste with a pH of less than or equal to 2 or greater than or equal to 12.5;
 - ◆ it is a waste that can corrode steel at a rate of $\frac{1}{4}$ inch or more per year.

Characteristic Hazardous Waste – Corrosivity (D002)

- Examples of corrosive wastes: sodium hydroxide, hydrochloric acid, ferric chloride.

Characteristic Hazardous Waste – Reactivity (D003)

- A material is a reactive hazardous waste if it is normally unstable, reacts violently with water, generates toxic gas if exposed to water or corrosive materials, or is capable of detonation if exposed to heat or flame.

Characteristic Hazardous Waste – Reactivity (D003)

- Examples of reactive wastes include: gunpowder, sodium metal, cyanides, and some sulfides.

Characteristic Hazardous Waste – Toxicity (D004 – D043)

- To determine if a waste is hazardous for Toxicity, a representative sample of the waste is subject to a test (known as a TCLP analysis) conducted by a Kansas certified laboratory.
- The results of the test must fall below TCLP regulatory limits, or the waste is characteristic for Toxicity.

Characteristic Hazardous Waste – Toxicity (D004 – D043)

- The TCLP test is limited to 8 metals and 32 organic compounds.

TCLP Testing – Rule of 20

- The TCLP test is designed to simulate what happens when material is subject to landfill conditions.
- The test utilizes a 20-fold dilution factor.
- Provided a standard (or total) analysis of a solid sample is less than 20 times the TCLP limit, a standard analysis can be used to show a material is non-hazardous.

TCLP Testing –Rule of 20

- For example – the TCLP limit for lead is 5.0 ppm: If a total analysis is conducted on a solid sample (at a considerable cost savings) and the test result is less than 100 ppm lead, then sample cannot be hazardous for TCLP lead.
- Keep in mind, if the sample result is greater than 100 ppm, the TCLP test must be ran, or the waste must be managed as a hazardous waste.

How to Make a Hazardous Waste Determination

- If a waste is listed (F, K, P, or U list) or is characteristic (ignitable, reactive, corrosive, toxic), then it must be managed as a hazardous waste.

How to Make a Hazardous Waste Determination

- Knowledge of Process can be used to make a hazardous waste determination.
- MSDS sheets should be used.
- Analytical testing may be necessary - pH, TCLP, individual analytes.

How to Make a Hazardous Waste Determination

- A generator may declare a waste hazardous:
 - ◆ sometimes done by mistake;
 - ◆ may choose to be on the side of caution;
 - ◆ may be of economical advantage to avoid testing costs (small waste streams).

Questions?