

US EPA ARCHIVE DOCUMENT

**SESSION 7**

**RCRA HAZARDOUS WASTE  
IDENTIFICATION:**

**EPA Authority and Criteria**



## Agenda: Hazardous Waste Identification (HWID) Introduction and Basics

- ▶ EPA Authority
- ▶ Criteria for Hazardous Waste
- ▶ HWID
- ▶ HWID Procedure



EPA Authority

### Hazardous waste is a subset of solid waste

Solid Wastes


Hazardous Wastes


- Can I have a hazardous waste that is not a solid waste? NO
- What is the relationship between solid wastes and hazardous wastes?  
HAZARDOUS WASTE IS A SUBSET OF SOLID WASTE
- See the VENN Diagram on the slide for this relationship.

EPA Authority

**Congress' definition of hazardous waste is found in RCRA §1004(5)**

- ▶ "Hazardous waste" means a solid waste, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:
  - Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or
  - Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.




RCRA §1004(5) 


- We have discussed the concept of solid waste, now we will now discuss how Congress and EPA developed the “hazardous” portion of the definition of hazardous waste.
- **Where would we look to see where Congress defined the term Hazardous Waste? RCRA STATUTE**
- **Where in the Statute would we look? Section 1004(5).**
- **NOTE:** This is the statutory definition, not the regulatory definition.
- This is a **very broad definition** and could potentially include everything. So Congress established **other provisions** to help guide EPA in promulgating regulations to identify and regulate hazardous waste.

EPA Authority

**Congress dictated to EPA certain criteria for defining what a hazardous waste is**

- ▶ In developing criteria for defining a hazardous waste, EPA had to take into account
  - Toxicity, persistence, and degradability in nature
  - Potential for accumulation in tissue
  - Other related factors such as flammability, corrosiveness, and other hazardous characteristics




RCRA §3001(a) 

- Congress told EPA to come up with some **criteria for defining what a hazardous waste is**. These criteria are located in Section 3001(a) of the RCRA Statute.
- EPA had to take into account those factors presented on the slide when developing the criteria (Sec. 3001(a)).

EPA Authority

**Congress directed EPA to implement a HWID process and to identify hazardous constituents**

- ▶ EPA had to promulgate regulations that
  - Identified the characteristics of hazardous waste
  - Listed particular hazardous wastes that would be subject to the provisions of this subtitle
- ▶ EPA also had to identify or list hazardous wastes that contained certain constituents (such as identified carcinogens, mutagens, or teratogens) at levels that endanger human health


RCRA §3001(b)(1) 


- Congress provided EPA more instruction/guidance in Sec. 3001(b)(1).
- In addition to clarifying the considerations for what makes a waste hazardous, Congress directed EPA to implement a **specific type of system**.
- **What kind of system did Congress require EPA to establish? LISTINGS AND CHARACTERISTICS**
- Congress also wanted EPA to **identify hazardous constituents**.
- EPA studied physical/chemical properties of wastes and wastes generated by specific processes and industries. EPA used this information about waste properties and a specific industrial wastestreams, and Congress' instruction in the Statute to **create hazardous waste characteristics and listings**.

Criteria for Hazardous Waste

### EPA's criteria for determining hazardous waste characteristics

- ▶ EPA chose characteristics that were
  - Definable in terms of physical, chemical, or other properties
  - Defined as hazardous waste, based on Congress' definition under RCRA
  - Measurable by standardized, uncomplicated, and available testing protocols



40 CFR §261.10 


- The regulations in **40 CFR Sec. 261.10** explain the criteria that EPA used to determine what characteristics would define a waste as hazardous.
- **This regulation is USED BY EPA ONLY;** it is not used by generators to characterize their wastestreams.
- **Why is it important that characteristics be measurable by standardized, uncomplicated, and available testing protocols?** Because the generator bears the primary responsibility for determining whether wastes exhibit a characteristic. If testing protocols are not widely available, then no one would be able to test the waste, and this would place an unreasonable burden on the regulated community.




Criteria for Hazardous Waste

### EPA's criteria for listing hazardous waste

- ▶ EPA chose to list wastes that
  - Exhibited a characteristic
  - Were considered “acute” hazardous wastes
  - Were considered “toxic” hazardous wastes



40 CFR §261.11(a) 


- There are three sets of criteria for listing a waste as hazardous. Per Sec. 261.11(a), EPA chose to list wastes that:
  - » **Exhibited a characteristic** – specific industrial wastestreams that *consistently exhibited* one of the four characteristics would automatically be regulated as hazardous
  - » **Were considered “acute” hazardous wastes**
  - » **Were considered “toxic” hazardous wastes**


**This regulation is USED BY EPA ONLY;** it is not used by generators to characterize their wastestreams.

Criteria for Hazardous Waste

### EPA's criteria for listing waste that is acute or toxic

<p>▶ Acute listings</p> <ul style="list-style-type: none"> <li>- Fatal to humans in low doses</li> <li>- Certain dermal and inhalation toxicities</li> <li>- Capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible illness</li> </ul>	<p>▶ Toxic Listings</p> <ul style="list-style-type: none"> <li>- Contain a Part 261, Appendix VIII constituent</li> <li>- Pose a substantial threat to human health and the environment when improperly managed (as determined by risk factors)</li> </ul>
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40 CFR §261.11(a)(2) & (3) 

- **Listed ACUTE hazardous wastes** are those that can be lethal or fatal to humans or cause or significantly contribute to an increase in serious irreversible, or incapacitating illness. These are identified by dermal and inhalation exposure studies on rats, rabbits, and mice. **Sec. 261.11(a)(2)**
  
- **Listed TOXIC hazardous wastes** are wastes that did not exhibit a characteristic and were not acute. EPA created criteria for listing toxic hazardous wastes on the basis of the presence of certain hazardous constituents in the wastestream. **Sec. 261.11(a)(3)**. **Toxic listed wastes are those that:**
  - » (1) contain a Part 261, Appendix VIII hazardous constituent , and
  - » (2) pose a substantial threat to human health and the environment when improperly managed as determined by 11 risk factors.

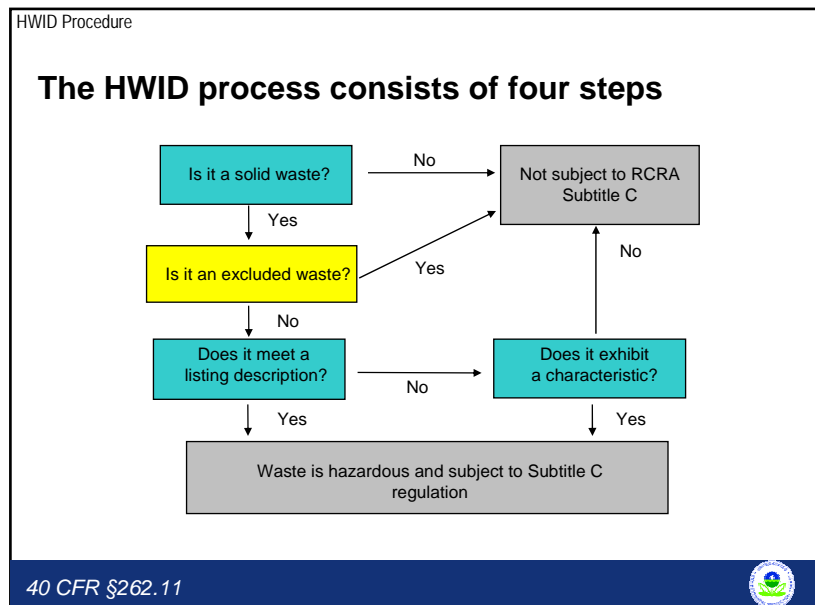
**NOTE:** Toxic listed wastes are **different from** toxicity characteristic wastes.

## Toxic listings contain hazardous constituents

- ▶ Part 261, Appendix VIII is a list of 372 hazardous constituents drawn from:
  - §307(a) and §311 of Clean Water Act (CWA)
  - §112 of Clean Air Act (CAA)
  - §1412 of Safe Drinking Water Act (SDWA)
  - EPA's Carcinogen Assessment Group
  - National Institute of Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances
  - Department of Transportation (DOT)



- For the purposes of the hazardous waste listings, RCRA Sec. 3001(b) required EPA to compile a list of hazardous constituents. This list is known as **Appendix VIII to 40 CFR**.
- **This regulation is USED BY EPA ONLY;** it is not used by generators to characterize their wastestreams.
- Part 261, Appendix VIII is a list of 372 hazardous constituents.
- If a waste contains any of these Appendix VIII constituents, EPA will then consider up to 11 factors when making a toxic listing determination (**Sec. 261.11(a)(3)(i)-(xi)**).



- » The question, “Do I have a hazardous waste?” boils down to the determination of whether one has a characteristic or listed hazardous waste.
- » However, this is a more complex determination than simply listing and characteristics.
- » The questions presented in the flow chart above are located in **40 CFR 262.11**.
- » This process appears in Part 262 because it is the generator who makes the determination, they are in the best position to make this determination. They have first-hand knowledge of the wastestream, process, raw materials, or inputs used.

HWID Procedure

**The HWID process starts with determining if a solid waste meets a listing description**

- ▶ F List (non-specific sources)
  - Solvents, electroplating, dioxins
  
- ▶ K List (specific sources)
  - Organic chemical manufacturing, explosives, petroleum refining
  
- ▶ P List
  - Acute commercial chemical products (CCPs)
  
- ▶ U List
  - Non-acute CCPs

