

US EPA ARCHIVE DOCUMENT

SESSION 10

**RCRA HAZARDOUS WASTE
IDENTIFICATION:**

Special Regulatory Conventions



Agenda: Special Regulatory Conventions

- ▶ Introduction
- ▶ Mixture Rule
- ▶ Derived-from Rule
- ▶ As-generated Wastes
- ▶ Contained-in Policy
- ▶ Review



Introduction

There are special regulatory conventions to consider in the hazardous waste identification (HWID) process

- ▶ Mixture rule
- ▶ Derived-from rule
- ▶ As-generated wastes listed solely for ignitability, corrosivity, and reactivity (I, C, R)
- ▶ Contained-in policy



- This Session addresses:
 - » how mixtures effect a wastes status as hazardous,
 - » the status of residues of treated hazardous waste,
 - » as-generated wastes listed solely for the ignitability, corrosivity, and reactivity characteristics, and
 - » the “contained-in” policy.

Without special regulatory conventions some wastes might get out of regulation

- ▶ Questions often arise if hazardous waste really is hazardous, for example:
 - Is waste identified as hazardous always hazardous?
 - Can hazardous waste be mixed with other wastes and become nonhazardous?
 - If the waste is treated to modify its chemical composition, is it still regulated as hazardous?



- Every facility has elaborate processes and steps to produce their product that causes different wastes to be generated along the way.
- **As these wastes are generated, industries may collect them in various fashions, sometimes:**
 - » These methods can cause different wastes to be mixed;
 - » Residuals may be generated during the management or treatment of waste.
- The regulated community needed to know how to look at their waste as they are managed throughout the process.
- These types of issues would leave “**loopholes**” in the regulations, that the regulated community in trying to cut waste management costs may try to take advantage of to “get their waste out” of RCRA regulation...

Two important regulatory conventions are the mixture and derived-from rules

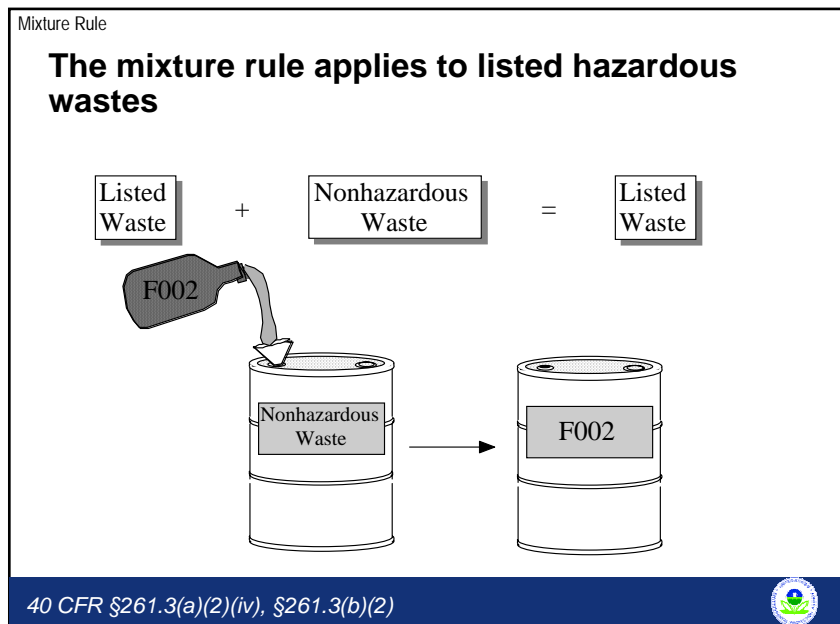
- ▶ The mixture rule governs mixtures of hazardous waste with nonhazardous waste
- ▶ The derived-from rule governs residues resulting from treatment, storage, and disposal of hazardous waste



40 CFR §261.3

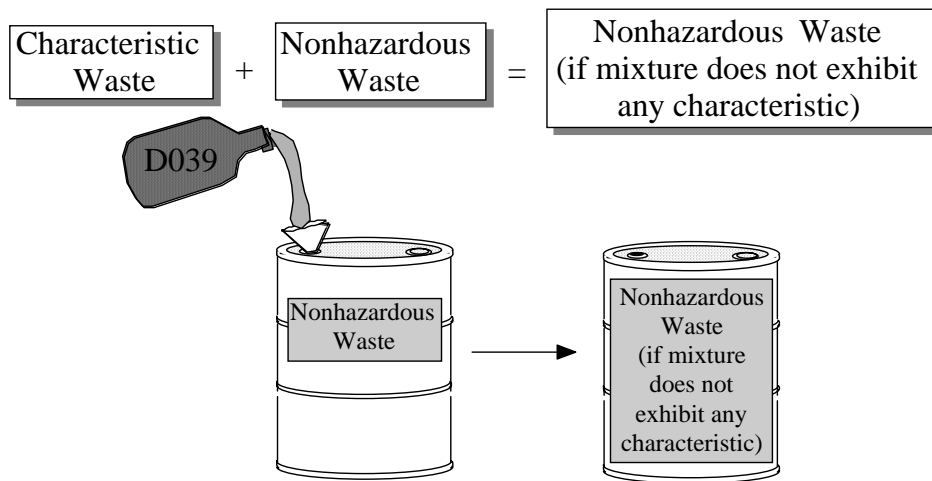


- As a result, the Agency adopted a conservative approach to close these loopholes. This approach is known as the “**mixture and derived-from rules.**”
- The **mixture rule** governs mixtures of hazardous waste with nonhazardous solid waste.
- The **derived-from rule** governs residues resulting from the treatment, storage, or disposal of hazardous waste.



- **THE MIXTURE RULE** for listed wastes is:
 - » Listed waste + nonhazardous waste = listed waste
- Let's say that we have a dry cleaning operation and have **F002 spent solvent**. After our dry cleaning process, **we mix that spent solvent in a container with nonhazardous process wastewater**.
 - » **The whole mixture is now F002.**
- The reason **F002 was listed in the first place is the risk posed by the hazardous constituents**. Those constituents (and their risks) are **STILL THERE**. It's the **SAME** mass load, just more dispersed and diluted in the waste.
- As you can see, this **removes the incentive to dilute the waste**.

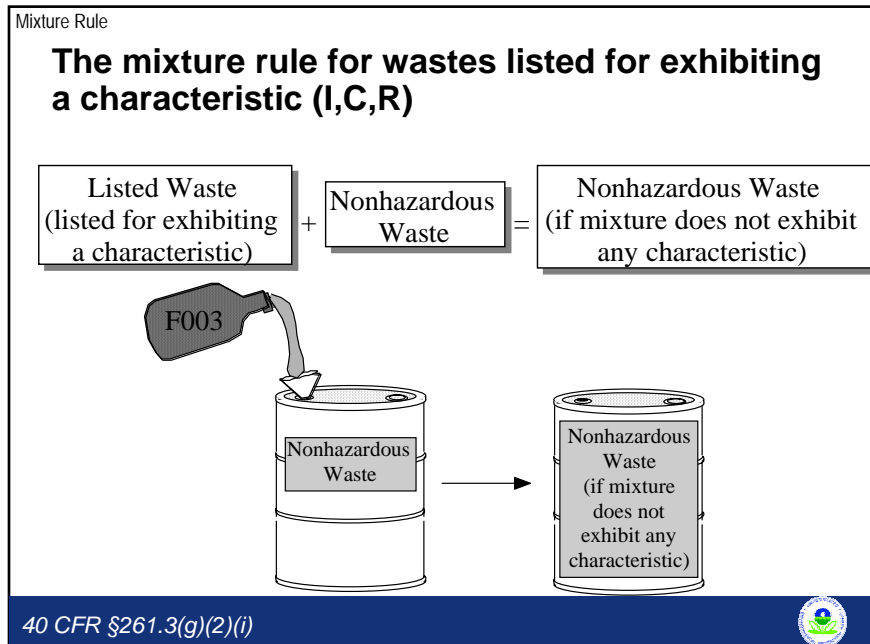
The mixture rule applies to characteristic hazardous wastes



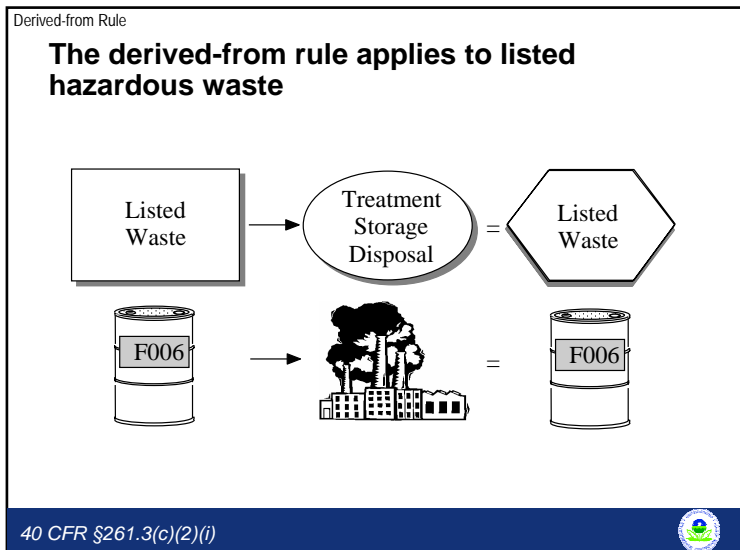
40 CFR §261.3(b)(3)



- **MIXTURE RULE FOR CHARACTERISTIC WASTES:**
- With **CHARACTERISTICS** ... if the resultant mixture does not exhibit a characteristic, **then the waste does not apply.**
 - » Characteristic waste + nonhazardous waste = Characteristics waste (if the mixture exhibits a characteristic of hazardous waste)
- Let's go back to our dry cleaner and assume that we are using a cleaning solution that is TC for **tetrachloroethylene (Perc, PCE)** but is not listed ... because it's only 5% before use.
 - » we mix it with some other detergents in the back room ... **the resultant mixture is no longer characteristic**
 - TCLP is less than .7 mg/l; and
 - It is not ignitable
 - » ... **do we need to manage it as a hazardous waste.? NO**
- **HOWEVER,** this mixture may violate the LDR dilution prohibition.



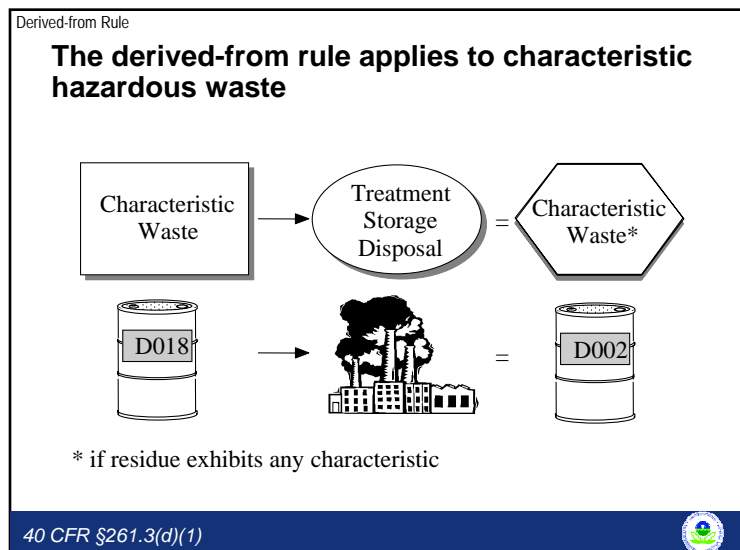
- That same reasoning applies to wastes that are **LISTED FOR EXHIBITING A CHARACTERISTIC**.
- The third part of the rule involves listed wastes (that are listed for exhibiting a characteristic) and are mixed with nonhazardous waste.
- **WHAT IS THE RULE?**
 - » Listed waste (listed for exhibiting a characteristic) + nonhazardous waste = nonhazardous waste (if mixture does not exhibit any characteristic)
- After our dry cleaning process, the spent solvent (**F003**) gets mixed in a container with nonhazardous process wastewater. **If the mixture does not exhibit ANY characteristic, then the waste is not hazardous.** This is because F003 was listed for a characteristic (that's the threat) and if a mixture involving F003 is no longer characteristic, that mixture does not pose enough of a threat to warrant regulation).



- **EXAMPLES OF THE DERIVED-FROM RULE:**
 - » waste disposed in a landfill generates a **leachate**;
 - » what if you store a waste and it **solidifies**--is that still hazardous?;
 - » what if treating inside a container, remove the waste, but there's a **residue** leftover from the treatment? or
 - » what if you treat some waste, and generate a **sludge**?

- **WHY IS IT IMPORTANT?** residue could be different from the original listed waste (may or may not meet the narrative listing description) but the residue could be just as or even **more dangerous** (*constituents and risks could even be more concentrated*).

- **WHAT IS THE DERIVED-FROM RULE FOR LISTINGS?**
 - » **Waste** (residue) **derived from the treatment, storage, or disposal of listed waste = listed waste**
 - » This includes: any sludge, spill residue, ash, emission control dust, or leachate (but not including precipitation run-off) is a hazardous waste.”



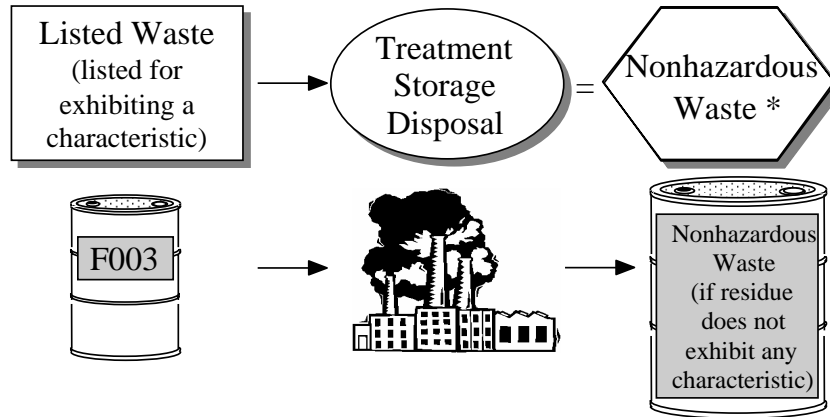
- **WHAT IS THE DERIVED-FROM RULE FOR CHARACTERISTICS?**

- » Waste derived from treatment, storage, or disposal of characteristic = **Hazardous waste (if characteristic)**
- » Waste derived from treatment, storage, or disposal of characteristic = **Nonhazardous waste (if not characteristic)**

- Let's say we have a waste that exhibits TC for benzene (D018). Let's say we burn it and get a residue that does not fail the TC for benzene (D018), however it would meet the definition of an ignitable solid (D001).
- **Is the residue hazardous? What code applies? D001.**
- In the end, the derived-from rule acknowledges that the management of hazardous waste may not render the waste nonhazardous.

Derived-from Rule

The derived-from rule for listed wastes exhibiting a characteristic (I,C,R)



* if resultant residues do not exhibit any characteristic

40 CFR §261.3(g)(2)(ii)



- **WHAT IS THE RULE?**

- » Waste derived from treatment, storage, or disposal of a waste listed for exhibiting a characteristic = **Hazardous waste (if characteristic)**
- » Waste derived from treatment, storage, or disposal of a waste listed for exhibiting a characteristic = **Nonhazardous waste (if not characteristic)**

As-Generated Wastes

A special rule applies to as-generated wastes listed solely for exhibiting a characteristic

- ▶ Wastes listed solely for ignitability, corrosivity, or reactivity (I,C,R) that do not exhibit the characteristic at the point of generation, are not hazardous
 - There are 29 waste codes that are listed for I, C, or R
 - Promulgated on May 16, 2001 (66 FR 27297)



40 CFR §261.3(g)(1)



- This rule did not exist prior to May 16, 2001. The Federal Register cited on the slide promulgated this provision.
- Before May 16, 2001, we only had the mixture rule for wastes listed for exhibiting a characteristic.

RCRA can regulate environmental media via the contained-in policy

- ▶ Environmental media that contain hazardous waste must be managed as hazardous waste until the media no longer contain the waste
 - Media do not contain a characteristic waste when the media no longer exhibit a characteristic
 - Media do not contain a waste listed for a characteristic when the media no longer exhibit a characteristic
 - Determination that media no longer contain a listed waste is made by states or EPA regions



57 FR 958, 986; January 9, 1992



- The other potential problem that EPA encountered was how to regulate hazardous waste that is found in **environmental media**, such as soil or groundwater.
- In order for something to be classified as a hazardous waste **it must first be a solid waste**.
 - » **In-place media does not meet the definition of solid waste**. That's where it's suppose to be. It's not discarded.
- EPA developed the contained-in policy to regulate environmental media, such as soil, groundwater that contain a hazardous waste. This is *policy only and is not found in the regulations!!*
- **LISTED:** If a barrel has leaked F001 waste into the ground when that soil is excavated it must be handled as if it were that listed waste until the soil no longer contains the waste.
- Point at which the soil is determined to no longer "**contain**" the waste is up to the implementing agency (**CONTAINED-OUT DETERMINATION**).
 - » It could be any level (background, health based, Superfund, SDWA MCLs, etc).

Contained-in Policy

The contained-in policy applies to environmental debris

- ▶ Debris contaminated with a RCRA listed waste must be managed as a hazardous waste until it no longer contains the hazardous waste

- ▶ The definition of debris found in §268.2(g) includes
 - Solid material
 - Particles that exceed 60 mm in size
 - Materials that are intended for disposal



40 CFR §261.3(f)(2)



- Unlike environmental media, the contained-in policy for debris is codified in the RCRA regulations.

Review

Review: Special Regulatory Conventions

- ▶ Mixture Rule
- ▶ Derived-from Rule
- ▶ As-generated Wastes
- ▶ Contained-in Policy

