

Waste Characterization & Generator Status What You Need to Know



Dan Sowry



Compliance Assistance and Pollution Prevention

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What We Will Cover



- **Hazardous Waste Characterization**
 - **Waste Evaluation**
 - Generator knowledge, lab analysis, msds
 - **Types of Hazardous Waste**
 - Excluded, Listed, and Characteristic wastes
 - Hazardous Waste Mixtures
- **Generator Categories**
 - Counting your hazardous waste
 - Episodic generators
 - How to reduce hazardous waste
- **Resources**



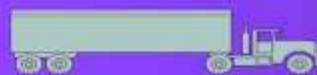
Resource Conservation and Recovery Act (RCRA) Cradle-To-Grave Management



“Cradle-to-Grave” Management



Generator



Transporter



Treatment
Storage
Disposal
Facility

Hazardous Waste Basics



Generator – any person, by site, whose act or process produces or causes a hazardous waste to become subject to the hazardous waste rules.

Under Ohio's laws, **all** wastes must be evaluated and documented by the generator.

In order for a material to be a hazardous waste, it must first be considered a **waste**.

When does a material become a waste?



A material becomes a waste when destined for disposal.



Waste Evaluation Requirement

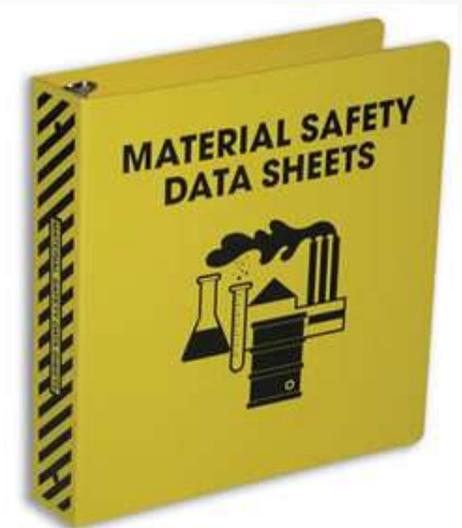


Don't throw any waste into the trash unless you have confirmed **and** documented that it is **NOT** a hazardous waste.

Waste Evaluation Requirements



- **Resources may include:**
 - **Lab analysis**
 - **Generator knowledge**
 - **Information from vendor/supplier**
 - **Material Safety Data Sheet (MSDS)**
 - **Process information**
- **Need to keep documentation on file for 3 years to show how you determined your waste is non-hazardous.**



Steps To Properly Evaluate Your Waste



1st – Determine if your waste is excluded

2nd – Determine if your waste is listed

**3rd – Determine if your waste exhibits a
characteristic**

Exclusions and Exceptions...



- **Exclusions**
 - **Ohio Administrative Code rule 3745-51-04**
 - **Samples sent to laboratory**
 - **Allowable discharges to public sewer**
 - **Household hazardous waste**

- **Materials that will be recycled, reused or reclaimed**
 - **Only applies to certain materials**
 - **Remain wastes if:**
 - **Placed on the land**
 - **Accumulated speculatively**



Steps To Properly Evaluate Your Waste



2nd – Determine if your waste is listed

Listed Hazardous Wastes



- **Non-specific waste sources (F listed)**
 - OAC rule **3745-51-31**
- **Specific waste sources (K listed)**
 - OAC rule **3745-51-32**
- **Unused discarded commercial chemical products (P and U listed)**
 - OAC rule **3745-51-33**

F Listed Hazardous Wastes



- **Non-specific sources**
 - Meaning from any type of process
- **Examples**
 - Spent solvents / Parts washer solvents
 - F001, F002, F003, F004, F005



F Listing Table Example



Hazardous Waste Number	Hazardous Waste Description	Hazard Code
F001	The following spent halogenated solvents used in <u>degreasing</u> : tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten per cent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; <u>and still bottoms from the recovery of these spent solvents and spent solvent mixtures.</u>	(T)
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten per cent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; <u>and still bottoms from the recovery of these spent solvents and spent solvent mixtures.</u>	(I) *

K Listed Hazardous Wastes



- **Specific waste sources**
 - **Meaning from a specific source or industry**
- **Examples**
 - **Wood preserving - K001**
 - **Iron and steel production**
 - **Arc furnace dust - K061**
 - **Spent pickle liquor - K062**



K Listing Table Example



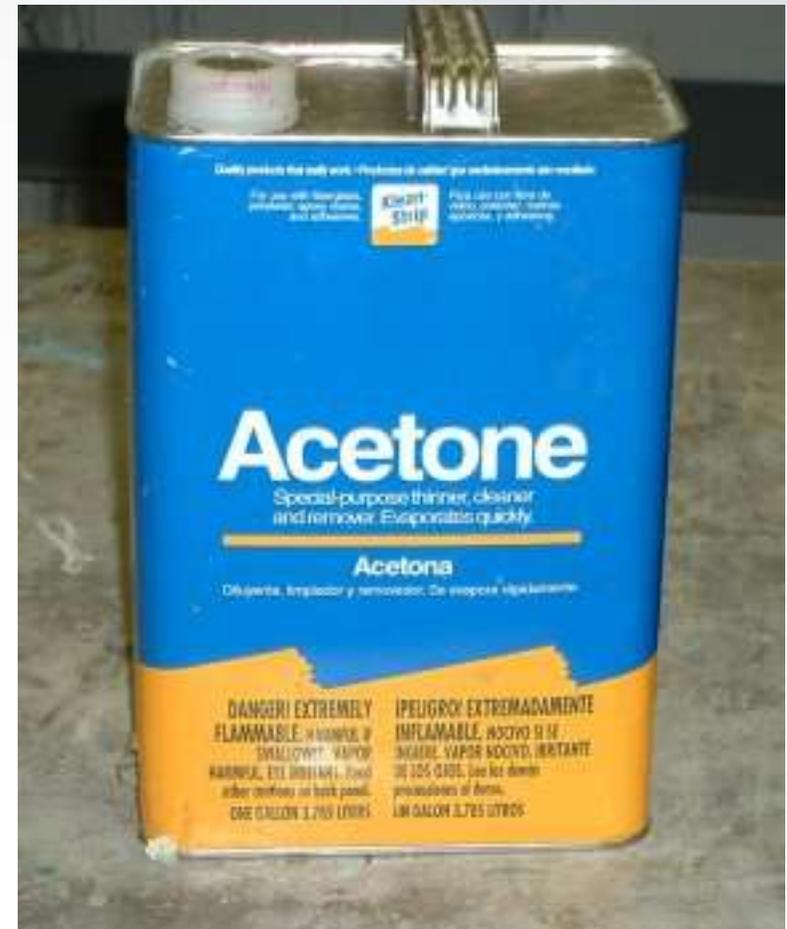
Hazardous Waste Number	Hazardous Waste Description	Hazard Code
Wood preservation K001.....	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
Iron & Steel K061..... K062.....	Emission control dust/sludge from the primary production of steel in electric furnaces Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332)	(T) (C)(T)

P or U Listed Hazardous Wastes



Must be an **unused** commercial chemical product

- **Examples of P listed hazardous wastes:**
 - Acetic acid – P058
 - Copper cyanide – P029
- **Examples of U listed hazardous wastes:**
 - Acetone – U002
 - Mercury – U151



Where You May Generate P or U Listed Hazardous Waste?



- **Outdated chemicals – laboratory clean-outs**
- **Science laboratories**
- **Photo laboratories**
- **Medical facilities
(Pharmaceuticals)**
- **Chemicals used for HVAC systems**



“Acute” Hazardous Waste?



- Has nothing to do with appearance...
- Most P listed hazardous wastes and F020, F021, F022, F023, F026 and F027.
- Listed hazardous waste designated with an “H” hazard code.



Acute Listing Example



Hazardous Waste Number	Hazardous Waste Description	Hazard Code
F021.....	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022.....	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	(H)

Steps To Properly Evaluate Your Waste



**3rd – Determine if your waste exhibits a
characteristic**

Characteristic Hazardous Wastes



4 categories of characteristic hazardous wastes (D001 – D043 codes):

- **Ignitable**
- **Corrosive**
- **Reactive**
- **Toxic**



Ignitable Hazardous Wastes



- Flash point <140 F
- Usually a liquid
- **D001** hazardous waste code



– Examples include:

- Paint waste
- Degreasers
- Solvents



Corrosive Hazardous Wastes



- pH < 2 or pH > 12.5
- Usually a liquid
- **D002** hazardous waste code
 - Examples include:
 - Waste acids
 - Alkaline cleaning fluids
 - Waste battery acids



Reactive Hazardous Wastes



- Explosive, unstable, reacts violently with water
- **D003** hazardous waste code
 - Examples include:
 - Waste bleaches
 - Other oxidizers
 - Lithium Sulfur Batteries



Toxic Hazardous Wastes



- **Contain toxic constituents above certain concentrations**
 - Heavy metals, insecticides, herbicides and other organics
- **Determined by Toxicity Characteristic Leaching Procedure (TCLP)**
- **D004 through D043 hazardous waste codes**
 - **Examples include:**
 - Electronic equipment containing lead
 - Photographic fixer containing silver
 - Fluorescent lights (can be managed as universal waste)



Toxic Hazardous Waste Metal Concentration Levels



Ohio EPA Hazardous Waste No.	Contaminant	CAS No.	Regulatory Level (mg/l)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D006	Cadmium	7440-43-9	1.0
D007	Chromium	7440-47-3	5.0
D008	Lead	7439-92-1	5.0
D009	Mercury	7439-97-6	0.2
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0

Mixture / Derived-From



Mixture Rule

- waste mixed with listed hazardous waste remains a listed hazardous waste
 - Example - Spills



Derived-From Rule

- any waste derived-from the treatment, storage, or disposal of a listed hazardous waste remains a listed hazardous waste
 - Example – Still bottoms



Do I Have A Hazardous Waste?



Generator Categories



3 Hazardous Waste Generator Categories



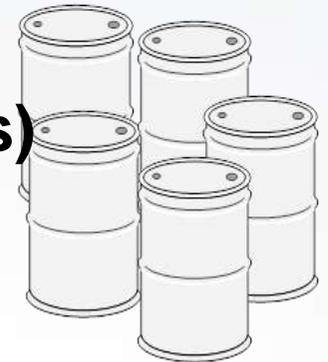
Conditionally Exempt Small Quantity Generator (CESQG)

- ≤ 220 lbs/month (about $\frac{1}{2}$ of a 55-gallon drum)
- ≤ 2.2 lbs/month of “acute” hazardous waste
- Never accumulates > 5 , 55-gallon drums onsite



Small Quantity Generator (SQG)

- 220 to 2,200 lbs/month ($\frac{1}{2}$ up to 5, 55-gallon drums)
- Never accumulates 30, 55-gallon drums onsite



Large Quantity Generator (LQG)

- over 2,200 lbs/month (over 5, 55-gallon drums)
- > 2.2 lbs/month of “acute” hazardous waste



Determining Your Category



- Total weight of hazardous waste that you generate (create) in any given month of the calendar year;
 - For example: Hazardous waste that you generate between September 1st and September 30th

AND

- Total amount of hazardous waste on-site at any given time (only for **CESQGs** and **SQGs**)

NOTE: Generator categories are **NOT** determined by the weight of hazardous waste shipped off-site.



Conditionally Exempt Small Quantity Generator



Less Regulations

Large Quantity Generator



More Regulations

When do I start counting my waste?



Waste counted when generated

- Removed from the process
- No longer usable product





Examples of what to count...

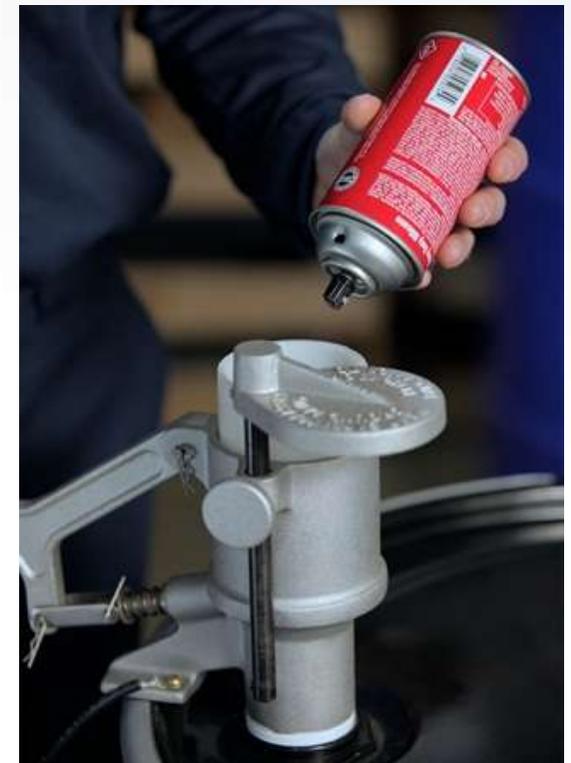
- **All listed and characteristic hazardous wastes that are:**
 - Accumulated prior to treatment, disposal or recycling
 - Generated as still bottom or sludge and removed from process equipment



Examples of what NOT to count...



- **Laboratory samples**
- **Recyclable materials**
 - **Examples: electronics and scrap metal**
- **Hazardous waste remaining in empty container**
- **Wastes that are recycled, without prior storage, in an on-site recycling unit**
 - **Solvent distillation unit**



What NOT to count...(continued)



- Waste residues in raw material storage/production units
- Wastes in elementary neutralization units, totally enclosed treatment facility or wastewater treatment unit
 - no prior storage
- Discharge to sewer
 - no prior storage
- Used oil (existing [webinar](#))
- Lead acid batteries under “old rule”
- Universal wastes (existing [webinar](#))
 - Batteries, light bulbs, mercury-containing devices



What If I Change Generator Categories?



- Termed **episodic generation**
- **Must manage your hazardous waste under all applicable generator requirements for hazardous wastes generated that month for as long as that waste remains on-site**

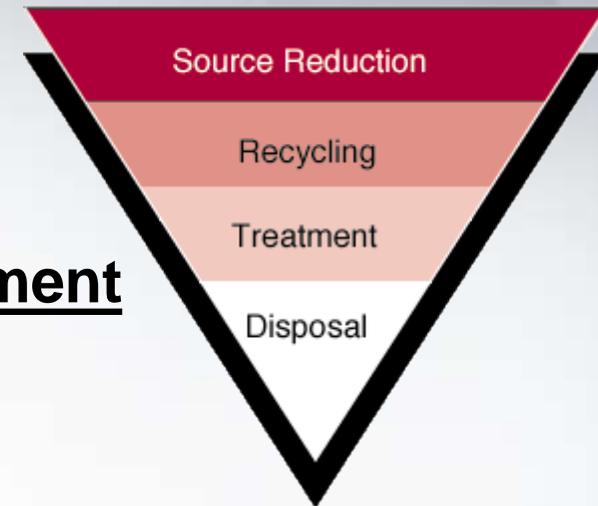


How Do I Reduce My Hazardous Waste?



- **Implement pollution prevention (P2)**
 - Eliminating waste at the source
 - Use less-hazardous products
 - Take advantage of FREE OCAPP P2 assessment
- **Recycle when possible**
 - Electronics
 - Universal waste (batteries, bulbs, mercury-containing devices)
 - Scrap metal
 - Paint waste
 - epawebapps.epa.state.oh.us/Recyclers/jsp/search.jsp
- **Avoid mixing waste streams**
 - Keep waste streams segregated
 - Label containers/tanks

Pollution Prevention Hierarchy



Ohio EPA Resources



Non-regulatory (we're not inspectors!!!)

Confidential (what we see and hear stays between us!)

Free (cheaper than hired consultants!)

One-stop shop for Assistance

Hotline (800) 329-7518

www.epa.ohio.gov/ocapp

Dan Sowry: 614-728-8575

dan.sowry@epa.state.oh.us



Compliance Assistance and Pollution Prevention

Questions???

