



# What Makes a Waste Hazardous?

*The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and safeguard the environment. One way EPA helps fulfill its mission is by regulating the management and disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). RCRA has the following three general goals: To protect human health and the environment • To reduce waste while conserving energy and natural resources • To reduce or eliminate the generation of hazardous waste.*

**A**s a first step in fulfilling the goals of RCRA, EPA developed objective criteria to define and identify hazardous waste for regulation. According to EPA, a waste is hazardous if it can be harmful to human health and the environment when handled improperly. Hazardous wastes come in many forms and can be generated in a variety of industrial and nonindustrial settings. Specifically, a waste is considered hazardous under RCRA if it meets either of the following criteria: (1) it is specifically listed (identified) as a hazardous waste or (2) it exhibits one or more characteristics of a hazardous waste.

Determining whether or not a waste qualifies as hazardous is important because only hazardous wastes that meet the criteria above are subject to RCRA regulations. EPA requires wastes identified as hazardous to be handled—stored, treated, and disposed of—according to the stipulations of the RCRA hazardous waste program.

## What Are the Different Kinds of Hazardous Waste?

### Listed Wastes

EPA has specifically identified and listed certain wastes that are known to be haz-

ardous. To determine a waste to be listed, EPA observes different industrial practices at numerous facilities, noting the common chemicals used, and assessing which wastes pose the greatest risk to human health and the environment. Listed wastes are always hazardous regardless of their chemical composition—no testing is required to identify them. Listed wastes are divided into four categories, according to their origin:

- *F list*—Wastes from generic industrial processes. For example, certain used solvents used for cleaning or degreasing.
- *K list*—Wastes from specific industry sectors. For example, certain petroleum refining wastes.



- *P list*—Unused, acutely hazardous commercial chemical products. For example aldrin, a chemical used as an agricultural insecticide.
- *U list*—Unused, commercial chemical products. For example, DDT and formaldehyde.

### Characteristic Wastes

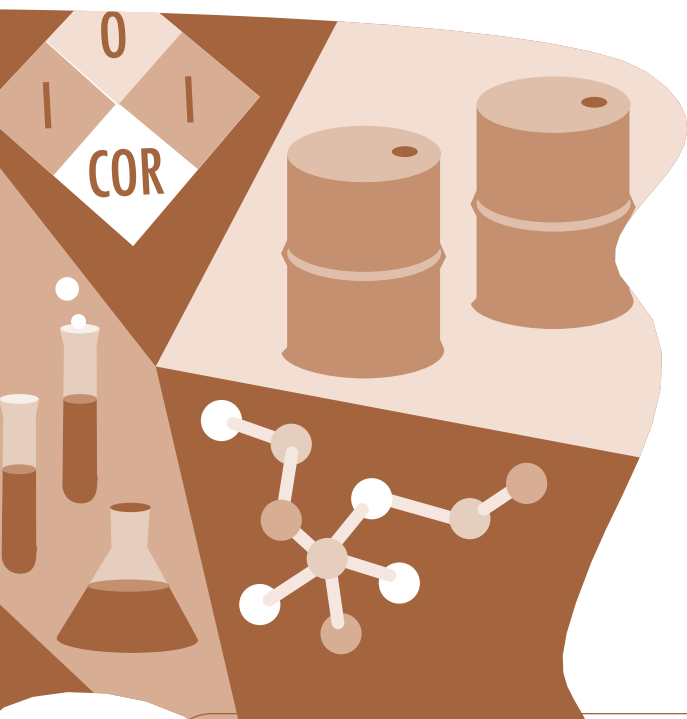
Not all hazardous wastes are listed. EPA has identified certain properties or **characteristics** that also can

identify a waste as hazardous to human health and the environment. A waste is considered hazardous and is regulated under RCRA if it exhibits one of the following characteristics:

- Ignitability—Waste that is determined to be flammable under certain conditions.
- Corrosivity—Waste that corrodes metals or has a very high or low pH.
- Reactivity—Waste that readily explodes or undergoes violent reactions.
- Toxicity—Waste that is known to be harmful or fatal when ingested and is known to leach into ground water at certain levels. For example, waste with high levels of arsenic, lead, or mercury.

### What Are the Different Forms of Hazardous Waste?

In developing the hazardous waste regulations, EPA recognized that waste management practices often cause wastes to deviate from their original form. For example, hazardous wastes can be mixed with other wastes; can be produced from other wastes; or can contaminate soil, ground water, and other materials.



#### Hazardous Waste Generated by Various Activities

Source	Generation Activity	Types of Waste
Educational Activities (Schools, Vocational Programs)	Laboratories, art classes	Solvent waste, paint waste, toxic waste, used/unused chemicals
Dry Cleaning	Commercial drycleaning process	Solvent waste
Construction	Paint preparation, contracting activities, vehicle and equipment maintenance	Ignitable wastes, toxic wastes, solvent wastes, used oil
Vehicle Maintenance	Rust removal, paint removal, spray booth/spray gun waste, paint preparation	Solvents, paint wastes, toxic wastes, ignitable wastes
Lawn Maintenance Services	Pesticide application, cleanup	Used/unused pesticides, solvent wastes, contaminated soils

## Mixtures

In some situations, hazardous wastes are mixed with other hazardous wastes or nonhazardous wastes before proper treatment or disposal. To prevent generators of hazardous wastes from diluting wastes intentionally in order to bypass regulation, EPA developed requirements for hazardous waste **mixtures**. A mixture of a listed waste and any other waste will remain regulated as a listed waste regardless of the percentage of the listed waste in the mixture. A mixture of a characteristic hazardous waste and any other waste will only be considered hazardous if the resultant mixture exhibits a hazardous waste characteristic. Even if resultant mixtures do not exhibit a characteristic of hazardous waste, they may still require further treatment before proper disposal.

## Derived-From Wastes

As a result of treatment, storage, or even proper disposal, residues of hazardous waste can be generated from the original hazardous waste. These are called **derived-from** wastes. EPA recognized that these residues might not be rendered nonhazardous by management activities. The hazardous status of a residue, such as a sludge, ash, or filter, depends on the type of hazardous waste from which it is derived. Just as with mixtures of hazardous waste, if a residue is derived from a listed hazardous waste, or exhibits a characteristic of hazardous waste, then it is regulated under RCRA as a hazardous waste.

For example, if a residue is derived from a listed hazardous waste, it retains the listed waste classification regardless of its concentration. In other words, if someone burns a K-listed waste, the resultant ash would remain a K-listed waste regardless of the concentration of that waste ash. If, however, a residue is derived from a characteristic hazardous waste, it will only be considered hazardous if it still exhibits one of the four haz-

## Are There Any Exclusions for Hazardous Waste?

Not all wastes defined as hazardous are subject to EPA's hazardous waste management standards. Congress and EPA identified certain wastes that may be impractical or otherwise undesirable to regulate. For example, household hazardous wastes (e.g., cleaning chemicals, paint and paint thinner, medicinal drugs, and ointments used in the home) are common materials disposed of by millions of households nationwide. To subject these wastes to the stringent hazardous waste regulations would be counterproductive, resulting in the overburdening of the general public. Instead, household hazardous waste is managed safely on a local level by its inclusion in municipal solid waste or special household hazardous waste collection programs.

### Other Wastes Excluded from Hazardous Waste Regulations:

- Domestic sewage.
- Certain industrial wastewater discharges regulated under the Clean Water Act.
- Radioactive wastes regulated solely under the Atomic Energy Act.
- Recycled used oil and certain used oil filters.
- Certain agricultural wastes.
- Processed scrap metal.

ardous waste characteristics. Remember, even if these residues do not exhibit a hazardous waste characteristic, they may still require further treatment before proper disposal.

## Contaminated Media and Debris

Sometimes listed and characteristic hazardous wastes are spilled into the environment (e.g., soil or ground water) or contaminate equipment, buildings, other structures, or debris. Environmental media and debris contaminated by a listed hazardous waste must be managed as that listed waste regardless of the concentration of waste they contain. Media and debris contaminated with a characteristic hazardous waste must be managed as a characteristic hazardous waste only if they exhibit a hazardous waste characteristic.

## Would You Like More Information?

### RCRA, Superfund, and EPCRA Hotline

Call 800 424-9346 or 703 412-9810 in the Washington, DC area. For the hearing impaired, the number is TDD 800 553-7672.

You also can access information via the hotline's Internet site at <[www.epa.gov/epaoswer/hotline](http://www.epa.gov/epaoswer/hotline)>.

### Additional Documents

These additional documents can help you learn more about the requirements for hazardous waste handlers. These documents are free and can be ordered from the RCRA Hotline. Reference the EPA document number (EPA530...) when ordering.

*Does Your Business Produce Hazardous Waste? Many Small Businesses Do, (EPA530-SW-90-027).*

*Identifying Your Waste: The Starting Point, (EPA530-F-97-029).*

*Understanding the Hazardous Waste Rules: A Handbook for Small Businesses—1996 Update, (EPA530-K-95-001).*

## Contact Your State

Although EPA's federal regulations set the national standard for compliance, individual states often have regulations that are more stringent than the federal regulations. You should contact your state about its specific regulations. State environmental contacts are available from the RCRA, Superfund, and EPCRA Hotline.

