



Wastes - Hazardous Waste - Waste Minimization

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Frequent Questions

The frequently asked questions include:

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What is RCRA?

RCRA stands for the [Resource Conservation and Recovery Act](#) of 1976. Congress outlined four major programs in RCRA, including:

- Solid Waste (Subtitle D): Focuses on traditional nonhazardous solid waste, such as municipal garbage and industrial waste that is not classified as hazardous waste;
- Hazardous Waste (Subtitle C): Requires EPA to develop and manage a nationwide program that identifies wastes that are hazardous and set standards for safely managing this waste from the moment it is generated, through storage, transportation, recycling, treatment, and ultimate disposal. Other components of the hazardous waste program are described [here](#);
- Medical Waste (Subtitle J): Lays out a two year pilot program to track the generation and management path of infectious waste;
- Underground Storage Tanks (UST--Subtitle I): Requires EPA to establish standards for the design and operation of USTs to prevent leaks into the ground.

What is hazardous waste?

Hazardous waste is a legal term defined in Subtitle C of RCRA that describes certain toxic, ignitable, corrosive, or reactive solid wastes generated by manufacturing or other processes. To learn more about the definition of hazardous waste, visit [RCRA Online](#).

How do I know if my waste is hazardous?

It is your responsibility as a generator to either test your waste or use your knowledge of the waste to determine its contents and properties. Once you know what the waste contains, you can then determine whether EPA considers it to be hazardous. To learn more about identifying hazardous waste, visit [RCRA Online](#). **What is Waste Minimization?**

Waste Minimization refers to the use of [source reduction](#) and/or environmentally sound recycling methods prior to energy recovery, treatment, or disposal of wastes. Waste minimization does not include waste treatment, that is, any process designed to change the physical, chemical, or biological composition of wastestreams. For example, compacting, neutralizing, diluting, and incineration are not typically considered waste minimization practices. EPA's preferred hierarchical approach to materials management includes source reduction, recycling, energy recovery, treatment, and finally, disposal.

Source reduction, commonly known as pollution prevention (P2), reduces or eliminates the generation of waste at the source and refers to any practice that reduces the use of hazardous materials in production processes.

Common examples of source reduction include:

- Early retirement of equipment such as mercury-containing devices like switches and thermostats;
- Reformulating or redesigning products, such as creating new PVC compounds without using lead;
- Using less toxic feedstocks, such as switching to the use of lead-free solder in manufacturing;
- Improving work practices, such as reorganizing paint batches in order to reduce cleaning operations.

Recycling, or reclaiming value from production by-products, can often be used when P2 is not economically practical. Recycling includes the reuse or recovery of in-process materials or materials generated as by-products that can be processed further on-site or sent offsite to reclaim value. Recycling is a broad term that encompasses the reuse of materials in original or changed forms rather than discarding them as wastes. Recycling can also be thought of as the collection and reprocessing of a resource so it can be used again, though not necessarily for its original purpose.

Common examples of recycling include:

- Direct use/reuse of a waste in a process to make a product, such as reusing a purge product used to clean paint lines rather than disposing of it by incineration.
- Processing the waste to recover or regenerate a usable product, such as collecting vapor from drycleaning operations, turning it back into liquid, and reusing the liquid to clean more clothes.
- Using/reusing waste as a substitute for a commercial product. When mercury is recycled from old equipment like switches, it can be used in new products that still require mercury, such as fluorescent bulbs. Recycling of mercury has been so successful that there is now enough recycled mercury in the U.S. that manufacturers do not need to use new mercury from mines.

A material is "**recovered**" if it is processed to recover a usable product, or if it is regenerated. This is known as **materials recovery**. In **energy recovery**, waste is converted into usable fuel. Read about [Energy Recovery](#).

What are the Benefits of Waste Minimization?

Waste minimization not only protects the environment; it also makes good economic and business sense. For example, reducing waste generation through waste minimization has helped some companies change their RCRA regulatory status from large quantity generator (1000 or more kilograms of hazardous waste generated per month) to small quantity generator (between 100 and 1000 kg of hazardous waste generated per month), or to conditionally exempt small quantity generator (up to 100 kg of hazardous waste generated per month). Some have managed to eliminate the generation of hazardous waste and avoid RCRA regulatory requirements altogether.

Source reduction and/or environmentally sound recycling, reuse, and reclamation practices have helped many organizations reduce:

- The quantity and toxicity of hazardous and solid waste generation
- Raw material and product losses
- Raw material purchase costs
- Waste management recordkeeping and paperwork burden
- Waste management costs
- Workplace accidents and worker exposure
- Compliance violations
- Environmental liability

At the same time, waste minimization can improve:

- Production efficiency

- Profits
- Good neighbor image
- Product quality
- Environmental performance

What is Pollution Prevention (P2)?

Pollution Prevention, often called P2, means source reduction, or preventing pollution at its source, before it is generated. It includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal. Examples include equipment or technology modifications, reformulation or redesign of products, substitution of less toxic raw materials, improvements in work practices, maintenance, worker training, and better inventory control. **What is the difference between Waste Minimization and Pollution Prevention?**

Waste Minimization is a term found in the Resource Conservation and Recovery Act (RCRA) that refers to source reduction and environmentally sound recycling of RCRA hazardous waste. Pollution Prevention is a term found in the Pollution Prevention Act of 1990 that refers to source reduction of all toxic wastes, including those released to air, water and land resources. Source reduction includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal. Examples include equipment or technology modifications, reformulation or redesign of products, substitution of less toxic raw materials, improvements in work practices, maintenance, worker training, and better inventory control.

Environmentally sound recycling includes the use, reuse and/or reclamation of residuals that may be designated as a hazardous waste, or materials in a hazardous waste. A material is "used or reused" if it is used as an ingredient in an industrial process to make a product or, or if it is used as an effective substitute for a commercial product. A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated.

Is Waste Minimization required by law?

In 1984, amendments to RCRA established the following national policy, making waste minimization the nation's preferred hazardous waste management practice: "...the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment." (RCRA Sec.1003[b], 1984.)

RCRA requires facilities that generate or manage hazardous waste to certify that they have a waste minimization program in place that reduces the quantity and toxicity of hazardous waste generated to the extent economically practicable.

In 1990, passage of the Pollution Prevention Act expanded the nation's waste prevention policy beyond a RCRA-only framework, to minimizing or eliminating toxic releases to all environmental media and natural resources: "The Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner." (PPA, Section 6602[b].)

The Pollution Prevention Act has encouraged many organizations to expand their focus from RCRA-only to a multimedia pollution prevention focus. EPA offers a variety of information sources on multimedia pollution prevention.

Many states have also enacted laws that require facilities to complete certain waste minimization activities. Most of these states require facilities to complete a waste minimization plan.