



U.S. ENVIRONMENTAL PROTECTION AGENCY

# National Pollutant Discharge Elimination System (NPDES)



## Proper Disposal of Household Hazardous Wastes

**Minimum Measure:** Public Education and Outreach on Stormwater Impacts

**Subcategory:** Education for Homeowners



**Hazardous household wastes can be disposed of properly by taking them to a local waste collection facility**

### Description

Many products found in homes contain chemicals potentially harmful to both people and the environment. Chemical products such as oven cleaners, paint removers, bug killers, solvents, and drain cleaners are just a few common hazardous products in the home. Over the last 20 years, concern about the disposal of such products has been growing. In 1976, the Resource Conservation and Recovery Act (RCRA) was passed, regulating the procedures governing the generation, storage, transport, treatment, and disposal of hazardous materials. Although this legislation has mitigated some of the problems associated with commercial hazardous material disposal, more needs to be done to reduce and properly dispose of home hazardous wastes.

Hazardous products include the following:

Cleaning products: oven cleaner, floor wax, furniture polish, drain cleaner, and spot remover

Car care and maintenance: motor oil, battery acid, gasoline, car wax, engine cleaner, antifreeze, degreaser, radiator flush, and rust preventative

Home improvement products: paints, preservatives, strippers, brush cleaners, and solvents

Other products labeled toxic, flammable, or corrosive, or containing lye, phenols, petroleum distillates, or trichlorobenzene

### Applicability

Municipal household hazardous waste programs are widely applicable and vary in scope. They can range from simply informing the public about the hazards of some commonly used household chemicals to establishing a household hazardous waste collection facility. More elaborate programs are best suited to larger communities that have existing facilities such as a municipal solid waste collection area. Municipalities with more limited resources can implement a limited education campaign and expand the program as resources become available.

## Implementation

First, communities should inform their residents about the potential effects of hazardous household materials on water quality and inform them how to properly store, handle, and dispose of the chemicals. Citizens are frequently unaware that their bad habits lead to water pollution. Once informed of the environmental dangers posed by chemicals, they can adjust their behaviors to protect water quality.

Municipalities can also inform residents about less-toxic alternatives to household hazardous wastes. The use of alternative products can be promoted through pamphlets, inserts in utility bills, or workshops. Nontoxic products can offer the same effectiveness as hazardous products but with less impact on the environment. See the [Alternatives to Toxic Substances](#) fact sheet for some examples of these alternatives. An effective community household hazardous waste collection program instructs the public how to dispose of hazardous household items, it tells them the hours and location of collection facilities, and informs them which items are acceptable or unacceptable at the collection facility. This information can be provided through pamphlets, handbooks, posters, magnets, workshops, or other means. Local scout troops and other service organizations could also be recruited to help distribute door hangings or flyers as part of their projects.

Municipalities should try to partner with the solid waste disposal services in their communities for help with public education. If disposal services make it clear that they do not pick up hazardous materials, then residents will be alerted to the need for alternative disposal. These solid waste collection companies can also provide users with hazardous waste collection site information through their company's website, newsletter, and billing statements.

In the spring of 1998, four Pennsylvania counties (Lehigh, Northampton, Monroe, and Schuylkill) partnered with two private waste-disposal companies, Safety-Kleen Services and Curbside, Inc., and two volunteer groups, Pennsylvania's Senior Environment Corps and the Environmental Alliance for Senior Involvement (EASI), to launch the first curbside pickup service for household hazardous waste on the East Coast. Known as the Door-to-Door Collection program, this new initiative will allow residents in the four counties to properly dispose of paints, paint thinners, solvents, motor oil, and other substances that should not be disposed of with household garbage. The partnership not only provides a curbside pickup program for household hazardous waste, but it also shows citizens how to prevent the accumulation of chemicals in the home environment. A key element of this service is convenience for area residents. Customers can make a phone call, put their waste in a container, and schedule a pickup.

Public outreach documents should include information about storing household hazardous wastes. For example, municipalities can recommend that residents tightly seal paint cans before storing. Paint should be kept in dry areas that will not freeze, away from sparks or flames. Pesticides should be stored in a dry area in their original containers with the labels intact. They should be stored in a separate locked cabinet or other secure structure, away from children and pets, food, medical supplies, cleaning products, heat, flames, or sparks.

Citizens should also know how to properly apply hazardous materials, especially how much is sufficient and how to avoid releasing materials into the environment. For example, many people who change their own automobile oil think that the only time that oil might be released is during draining and refilling. Approximately 75 percent of the 420 million oil filters are sold annually are disposed of in landfills. If recycled, these oil filters would yield 17.8 million gallons of oil and 161,500 tons of steel. Furthermore, approximately 850 million gallons of collected used oil could be reclaimed for use as a fuel supplement or lubricant (Arner, 1996).

To minimize the disposal of hazardous products, it is important that citizens know that it is best to use only those products that are absolutely necessary, and to use nontoxic alternatives whenever possible. For example, it is possible to clean ovens by applying table salt to spills, then scrubbing with soda water. Also, approximately a cup of baking soda combined with a cup of white vinegar and a cup of ammonia in a gallon of warm water makes an excellent multipurpose cleaner. (See the alternative products fact sheet for more information about less toxic alternatives.)

Disposal of home hazardous products also requires special attention. When use of hazardous household products is unavoidable, municipalities should emphasize to citizens that household hazardous wastes should not be flushed down the drain because these drains lead to either a home septic system or a municipal treatment plant, neither of which has adequate capability to remove hazardous chemicals from wastewater. Toxic chemicals might also disrupt microbial processes in septic tanks and treatment plants, reducing their effectiveness. Some of the toxins can be removed, but a

significant portion of these chemicals passes through treatment processes and ultimately contaminates water resources. They should also be informed that home hazardous products should never be poured on the ground, into gutters, or down storm drains where they will eventually enter storm sewers and be transported untreated into nearby waterbodies.

Many municipalities have started hazardous waste disposal and recycling centers. In fact, many communities have established hazardous waste collection days when hazardous products are collected from homes and taken to an approved facility for disposal. The municipality must make the effort to inform its citizens of the hours and locations of such sites and what materials are accepted there. The [City of Austin](#) [EXIT Disclaimer](#), Texas, provides information about their household hazardous waste disposal program, (City of Austin, Texas, 2001). The site includes background information, the hours and location of the collection facility (with a map), materials accepted at the facility, details about disposing of business waste, hazardous waste recycling opportunities, and chemicals management. Similarly, the [City of Fort Worth](#) [EXIT Disclaimer](#), Texas set up a regional Environmental Collection Center and developed a website that lists acceptable materials to allow the public to properly dispose of chemicals. (City of Fort Worth, Texas, 2004).

The [Shelby County](#) [EXIT Disclaimer](#) website also provides information to citizens on alternatives to toxic household chemicals and options for paint and solvent disposal.

Some communities establish partnerships with service stations to collect hazardous waste. This way, citizens from throughout the community can go to the most convenient location. The number of collection centers will depend on population size and municipal resources. A general guideline is one collection center for 3,500 to 25,000 residents, two for 25,000 to 100,000 residents, and three for populations of more than 100,000 (Arner, 1996). Hazardous waste collection days should be well publicized to ensure the message is received. Setting a schedule for collection days, such as the first Monday of every month, will help citizens know when they can drop off household hazardous wastes.

When collected, materials must be managed as hazardous wastes. Time and resources must be allocated to obtain the services of a registered hazardous waste management firm to safely remove and dispose of chemicals. In many cases, these firms can take over the operation of the collection event to maximize safety and ensure that no spills occur.

The Pennsylvania Department of Environmental Protection (DEP) has published an excellent guidance manual for municipalities and other groups to start a household hazardous waste program. The manual includes information about budgeting and funding, restrictions, materials to collect and exclude, estimating collection amounts, suggested timelines, and operational tips. This manual can be downloaded from the [Pennsylvania DEP](#) [EXIT Disclaimer](#) website.

## **Benefits**

Properly disposing of household hazardous wastes ensures that contamination through leaks and spills does not occur. If toxic wastes are disposed of with regular garbage, they could destroy landfill liners and compromise other disposal areas.

## **Limitations**

Municipalities with limited resources can form partnerships with private sanitary services, or environmental or service groups, to help collect hazardous wastes and advertise the program. Municipalities must make an effort to establish these partnerships at the outset of the program so that the groups can take over a portion of the administrative planning and implementation.

## **Effectiveness**

No matter the scope of the household hazardous waste program, whether it is an educational campaign or a full-fledged collection program, citizens will have an increased awareness of the problems caused by mishandling and improper disposal of hazardous chemicals. Municipalities can gauge the effectiveness of their household hazardous waste program by surveying residents about their perceptions and behavior after educational materials have been distributed. The effectiveness of an established program can be measured by the amount of materials collected on amnesty days or on a monthly or yearly basis at full-time collection facilities.

## **Cost**

Costs for household hazardous waste programs can be high, especially if a collection program is selected. In some states, municipalities can apply for grants to help pay for household hazardous waste collection. Pennsylvania's 1994 Household Hazardous Waste Funding Act (HHW) reimburses municipalities for 50 percent of the developmental and operational costs associated with HHW collection programs, up to a total of \$100,000 per county per year (Pennsylvania

DEP, 1999). Any municipality that registers a HHW collection program with DEP is eligible to apply for a grant. Grants are provided on a first-registered, first-conducted basis, and prioritized according to criteria laid out in the Act. (Priority is given to existing programs and those operated by counties, multi-county groups, and first and second-class cities.) Additionally, the Small Business and Household Pollution Prevention Act provides 80 percent grants to counties to develop and implement pollution prevention education programs for households and small businesses, even if conducted in the absence of a collection program. Municipalities should check with their state environmental agencies to identify grant programs they can use for household hazardous waste programs.

To lessen hazardous waste disposal costs, recycling programs can reuse some chemicals. Austin, Texas, offers a hazardous waste recycling program that allows residents to select from new or used chemicals dropped-off by other residents (City of Austin, Texas, 2001). Instead of incinerating these products at great expense, the facility will give them to anyone who wants them on a first-come, first-served basis. Products may include paint, solvents, automotive fluids, pesticides, fertilizers, cleaning products, or other chemicals. In its first four months of operation, the public reuse center saved \$3,207 in disposal costs. There were 300 participants, and 14,562 pounds of hazardous waste were reused.

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