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United States
Environmental Protection Agency

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Safe Storage and Disposal of Pesticides

OPA778



State and local governments are cautioned against enacting EPA guidelines as law without adapting them to their particular environmental and economic conditions and taking into account the availability of proper facilities.

Pesticides are vital products from which you benefit every day, though you may not always realize it. Your food, your water, your home—all are protected by them. Pesticides are used to combat problems such as destruction of forests by gypsy moths, strangulation of lakes by algae, and spread of disease by mosquitoes.

Beneficial as they are, these compounds can be harmful when not handled properly. For this reason, the manufacture, sale, and use of pesticides are regulated by the Federal Government under a law called the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended.

Section 19 of the amended FIFRA deals with storage and disposal of pesticides and their containers. It requires the U.S. Environmental Protection Agency (EPA) to establish safe guidelines and regulations. The purpose of this pamphlet is to tell you, the pesticide user, about them. They have been developed by agricultural, industrial, and environmental scientists and represent the best and most practical procedures now available.

The guidelines cover the disposal and storage of the pesticide product itself as well as any unused mixture or excess product and residues in empty containers or spray tanks, the handling of liquid used in rinsing containers or cleaning equipment and work areas, and pesticide-derived wastes from manufacturing or processing, which must be disposed of separately from other wastes. The guidelines also cover disposal of containers, which include any material used to enclose pesticides except reusable spray tanks.

If you are a pesticide user—particularly if you are a farmer, rancher, commercial applicator, or other large-scale user—or if you are a manufacturer, or Federal, State, or local official, please read this pamphlet carefully. The practices described here can help you avoid costly, often tragic mishaps.

The EPA guidelines contained here *must* be followed by agencies of the Federal Government, but it is hoped that everyone who reads this pamphlet will use them. A small investment of time and effort will bring a worthwhile return.

After all, a safe and productive environment is everyone's business.

Some of the practices call for special facilities or technology with which you may not be familiar. If you need more information or further details, the last page of this pamphlet contains a list of places to contact.

You should also be aware that many States and localities have stricter regulations than the practices recommended here. If in doubt, check with your local authorities to be sure you don't violate any laws.

Some Key Points to Remember

- Read and follow instructions on labels carefully. Pesticide labels must provide full instructions on disposal and storage. All of them will, when pesticides are reregistered under the amended FIFRA. Those instructions must be followed—that's the law.
- Use up all your pesticides according to label directions. For example, apply everything you mix. Use rinse liquids to prepare new batches of the same pesticide.
- If you can't use all of your undiluted spray materials, try to return them to your dealer. He may be able to dispose of them or ship them back to the manufacturer for processing.
- Always triple-rinse containers. This is generally acknowledged to be a very effective cleaning and safety practice.
- Try to return triple-rinsed containers to your dealer for reuse or reconditioning. Don't ever reuse them yourself. Your area may have an approved landfill that will accept triple-rinsed containers.

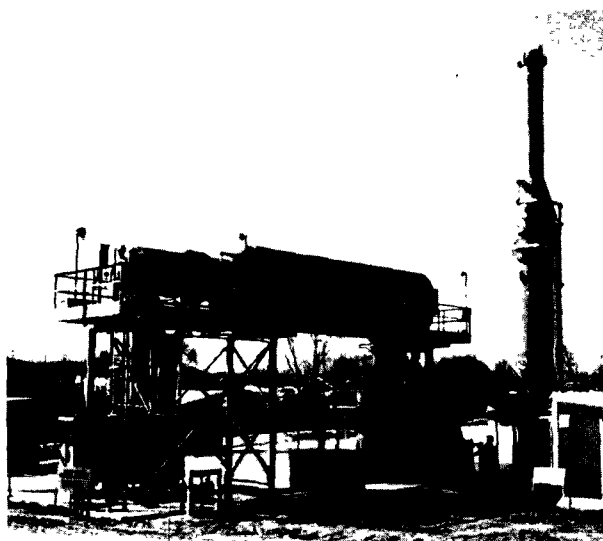
Disposal

If you can't use all your pesticides or return them to your dealer, you may be able to apply one of the alternatives described below. They are presented in general order of desirability. However, not all are suitable for all types of pesticides or for all conditions, so be sure to take note of any exceptions.

Incineration. The most effective disposal method is incineration—but only at a State approved facility that can maintain the required temperature for the time needed for complete destruction. (Most municipal and private incinerators don't qualify.) A list of facilities can be obtained by contacting your EPA Regional Office. You can burn most pesticides in an approved incinerator. Exceptions are pesticides containing certain metals, such as mercury, lead, arsenic, cadmium, beryllium, or selenium, and those containing inorganic substances such as copper sulfate and sodium arsenite. Instead of being burned, they should be treated or encapsulated and placed in a specially designated landfill (see below). (There are procedures available in a few areas for removing metals from metallo-organic pesticides to render them suitable for incineration. Check with your EPA Regional Office for more information.) Finally, NEVER BURN A PESTICIDE YOURSELF.

Burial. If no approved incinerator is available in your area, pesticides should be taken to a specially designated landfill for disposal. These have been approved by a State.

Incinerator



or local agency specifically for pesticide disposal. Their locations can be obtained by contacting your EPA Regional Office. Almost all pesticides can be buried at these sites, but those containing certain metals or inorganic substances must be encapsulated first. Encapsulation means enclosing the pesticide and container in a material impervious to the pesticide chemicals and then enclosing them again in a container such as concrete or steel that will not be damaged by dumping, burial, or storage.

In all cases of burial, make sure a record is kept of the specific spot where the pesticide is buried.

Soil injection and chemical degradation. There are two other possible disposal practices if incinerators or specially designated landfills are not available: soil injection and chemical degradation. Soil injection basically means the incorporation of pesticides into the soil plow layer. Chemical degradation refers to the subjecting of pesticides to chemical processes which cause them to degrade into non-toxic substances. Before attempting these procedures, however, you should seek specific guidance and advice from the EPA Regional Office in your area.

If you are unable to apply any of the above alternatives, store pesticides and containers under proper conditions (see Storage) until disposal facilities do become available.

Landfill disposal

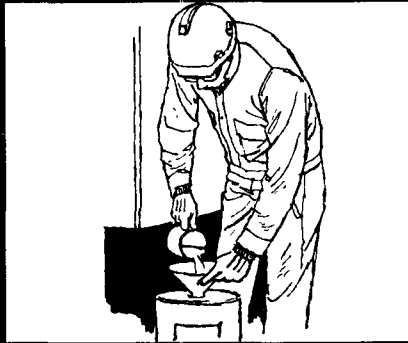


Triple Rinsing



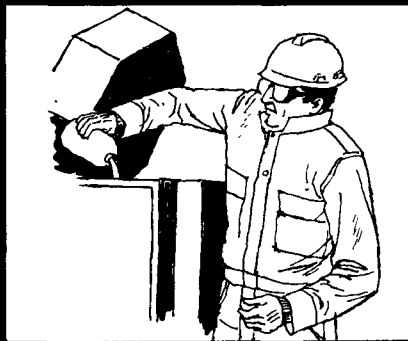
1

Empty container into spray tank; drain in vertical position 30 seconds.



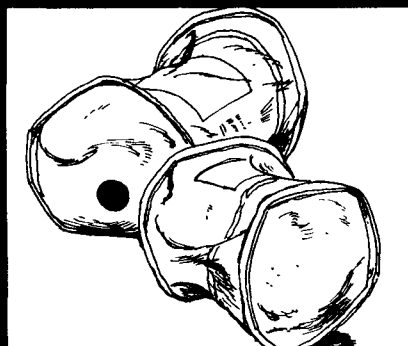
2

Refill container until 10% full; rinse thoroughly, pour into tank, drain.



3

Rinse and drain container twice more. Add fluid to bring spray tank up to level.



4

Crush container for recycling or burying. Drums can be reconditioned.

Container Disposal

Empty pesticide containers are seldom completely free of pesticides, so they must be disposed of just as carefully as pesticides themselves

Fortunately, most containers can be largely decontaminated by triple-rinsing, so you are strongly urged to do so. Don't forget to use or dispose of rinse liquids properly

Use them to make new batches of pesticide, or dispose of them as you would unmixed pesticide. Triple-rinsed containers may be returned to your dealer or to a drum reconditioner for reuse, or to a scrap dealer for recycling, or placed in an approved sanitary landfill

WARNING
NEVER REUSE ANY PESTICIDE CONTAINER YOURSELF

If none of the above is possible, you may be able to apply one of the following practices, listed in general order of desirability. Take note of any exceptions

Empty combustible containers can be incinerated in a specially approved facility. If none is available, the containers can be buried at a specially designated landfill approved for disposal of pesticides. If such a facility is not available, containers can be buried at an approved land disposal site

There are two alternatives suggested primarily for ranchers and farmers. Combustible containers except those formerly containing lead, mercury, arsenic, or cadmium can be open-field burned where State or local ordinances permit. At no time, however, should more than 50 pounds of empty combustible containers be burned at one time. The site should be isolated and downwind of populated areas. Single containers can be open-field buried only if water sources will not be contaminated

Storage

Let common sense be your guide to safe storage of pesticides and containers. Here are a few guidelines to follow:

- Siting is a key factor. Avoid places where flooding is possible. Make sure water sources won't be contaminated and drainage is adequate. Wind directions should also be considered.
- Structures ought to be dry, well-ventilated, easily accessible, designed to prevent fire, and separated from other structures or rooms which may contain food or feed. Post the area with warning signs and prevent unauthorized entry. Space and facilities need to be provided for decontamination of people and equipment.
- Your operating procedures should include maintenance of complete and up-to-date records, regular inspection of containers, advance planning and materials for dealing with spills, and regular inspection and monitoring of the surrounding area to detect contamination. Where large quantities of pesticides are stored, it is a good idea to provide police, fire, and public health departments with a floor plan and records on the location and nature of pesticides and containers.
- It is sometimes necessary to store pesticides in a temporary location. To the extent possible, apply the same practices as for long-term storage. In addition, you should store only the amount needed for a single day's application, and only for the period immediately preceding use.



The Don'ts

Certain disposal and storage practices are so obviously hazardous they should be avoided as a matter of course. For example:

- Don't open burn, except as described on p.3
- Don't open dump under any circumstances.
- Don't dump in lakes, ponds, rivers, and sewers.
- Avoid deep well injection, unless extensive testing has been conducted to determine that no environmental hazard exists and the State and EPA approve.
- Don't store in such a way that food for animals or humans or food packaging materials could be contaminated.
- Avoid open storage that presents an environmental hazard.



EPA will review and revise the guidelines as necessary. In some cases guidelines may become regulations you will have to follow. When changes occur, they will be publicized. It is advisable to check periodically with EPA for current developments.

For questions on the contents of this pamphlet call your EPA Regional Office

States covered	
EPA Region 1 John F. Kennedy Federal Building Boston, Massachusetts 02203 (617) 223-5775	Connecticut, Maine Massachusetts, New Hampshire Rhode Island, Vermont
EPA Region 2 26 Federal Plaza New York, N. Y. 10007 (212) 264-0503	New Jersey, New York Puerto Rico, Virgin Islands
EPA Region 3 6th & Walnut Streets Philadelphia, Pa. 19106 (215) 597-0982	Delaware, Maryland, Pennsylvania Virginia, West Virginia District of Columbia
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EPA Region 6 1201 Elm Street Dallas, Texas 75270 (214) 749-7601	Arkansas, Louisiana, Oklahoma Texas, New Mexico
EPA Region 7 1735 Baltimore Avenue Kansas City, Mo. 64108 (816) 374-3307	Iowa, Kansas, Missouri Nebraska
EPA Region 8 1860 Lincoln Street Denver, Colorado 80203 (303) 837-2221	Colorado, Utah Wyoming, Montana North Dakota, South Dakota
EPA Region 9 100 California Street San Francisco, Calif. 94111 (415) 556-4606	Arizona, California Nevada, Hawaii
EPA Region 10 1200 Sixth Avenue Seattle, Washington 98101 (206) 442-1260	Alaska, Idaho, Oregon Washington

or

U.S. Environmental Protection Agency

Pesticide Waste Management
Hazardous Waste Management Division (AW-669)
Washington, D. C.
(202) 755-9187

U.S. Environmental Protection Agency

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