

# Pesticide Labeling: Storage and Disposal<sup>1</sup>

Frederick M. Fishel<sup>2</sup>

*This document describes criteria that pesticide manufacturers consider when determining the proper storage and disposal language on their products' labels. Examples of typical storage and disposal statements are provided.*

## Introduction

The structural and termite pest control operator had reached retirement age and was ready to sell his business to one of his competitors for a handsome price. His accountant determined that the profit from the sale of the business would support his wife and him throughout their retirement years. Upon an inspection of the business' pesticide storage area prior to the sale, an unforeseen problem arose. In the back portion of the storage area, there were a significant number of old insecticide products, some which were no longer registered for use in the U.S. Others were in containers and packaging that had deteriorated to the point that they could not be positively identified. Some had leaked out of ruptured containers, a sign of improper storage conditions (Figure 1). The soon-to-be retired pest control operator was in a sudden dilemma—the competitor was not going to purchase the business and inherit the problem pesticides and mess. Since the pesticides—many of which had deteriorated beyond recognition because of the poor storage conditions—could no longer be used, a hazardous waste collection firm had to be called in to clean up—a very costly proposition.



Figure 1. Improper storage of pesticides can result in costly cleanup.

## Storage and Disposal Labeling Format

The storage and disposal instructions are found in the “directions for use” section on pesticide labels. The product’s specific directions for its storage and disposal are identified following the heading “STORAGE AND DISPOSAL.” Often, as a means to increase their prominence, they will be set off by a box.

1. This document is PI-106, one of a series of the Agronomy Department, UF/IFAS Extension. Original publication date March 2006. Reviewed January 2015. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. Frederick M. Fishel, professor, Agronomy Department, and director, Pesticide Information Office; UF/IFAS Extension, Gainesville, FL 32611.

Use pesticides safely. Read and follow directions on the manufacturer’s label.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county’s UF/IFAS Extension office.

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

## Storage Statement Criteria

Specific storage instructions are not prescribed; rather, manufacturers develop storage instructions for each product considering, when applicable, the following factors:

- Conditions of storage that might alter the composition or usefulness of the pesticide. Examples are temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.
- Physical requirements of storage that might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage temperature, potential for breakage of glass, crushing or damage due to stacking, penetration by moisture, and ability to withstand shock or friction.
- Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.
- Instructions on what to do if the container is damaged in any way or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.
- General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other products, fertilizer, food, and feed.
- General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.
- EPA has historically required all products, except for residential/household use products, to bear the following statement for risk management purposes: “Do not contaminate water, food, or feed by storage and disposal.”

## Storage Statements for Specific Chemicals

Some pesticide active ingredients have special precautions regarding their storage (Table 1).

## Disposal Statements

Except those products intended solely for residential/household use, the labels of all products that contain active ingredients that are acute hazardous wastes or assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II

on the basis of acute inhalation toxicity will generally bear one of the following disposal statements:

“Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsates is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.”

Labels of products, except those intended for household use, containing active or inert ingredients that are toxic hazardous wastes must bear the following pesticide disposal statement:

“Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsates is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.”

Labels for all other products, except those intended for household use, must bear the following pesticide disposal statement:

“Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.”

For non-antimicrobial residential/household use products, the disposal statements for products in pressurized containers and in non-pressurized containers are:

- Pressurized containers

“Do not puncture or incinerate! **If empty:** Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency or (toll free number of appropriate contact) for disposal instructions.”

- Non-pressurized containers

“**If empty:** Do not reuse this container. Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency or (toll free number of appropriate contact) for disposal instructions. Never place unused product down any indoor or outdoor drain.”

Labels for antimicrobial household products may bear the following disposal statement: “Securely wrap original container in several layers of newspaper and discard in trash.”

Specific disposal statements vary by container type. These are listed in table 2.

## Summary

Properly storing and disposing pesticides and their containers is good insurance. Liability issues exist where their cleanup is required because of storage problems. Pesticide manufacturers write their storage and disposal directions with the best interest of the end user in mind—to prevent costly accidents or problems from happening in the first place.

## Additional Information

Dean, T.W., O.N. Nesheim, and F.M. Fishel. Pesticide container rinsing. (2014) *Pesticide container rinsing* PI-3. Gainesville: UF/IFAS retrieved January 2014. <http://edis.ifas.ufl.edu/pi003>

Fishel, F.M. 2005. *Interpreting pesticide label wording* (2013) PI-34. Gainesville: UF/IFAS retrieved January 2014. <http://edis.ifas.ufl.edu/pi071>

Fishel, F.M. 2005. *Operation cleansweep for pesticides*. (2014) PI-48. Gainesville: UF/IFAS retrieved January 2014. <http://edis.ifas.ufl.edu/pi085>

Nesheim, O.N. and F.M. Fishel. *Proper disposal of pesticide waste*. (2014) PI-18. Gainesville: UF/IFAS retrieved January 2014. <http://edis.ifas.ufl.edu/pi010>

Table 1. Pesticide active ingredients that have special storage statements.

Active ingredient	Special pesticide storage statements
Aluminum phosphide	Not for use or storage in or around inhabited areas.
Liquid sodium hypochlorite Liquid calcium hypochlorite	Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not reuse empty container but place in trash collection. Do not contaminate food or feed by storage, disposal or cleaning of equipment.
Magnesium phosphide	Store only in cool, dry, locked, and ventilated room. Protect from moisture, open flames, or heat.
Sodium calcium hypochlorite	Keep this product dry in a tightly closed container, when not in use. Store in a cool, dry, well ventilated area away from heat or open flame. In case of decomposition, isolate container (if possible) and flood area with large amounts of water to dissolve all materials before discarding this container. Do not reuse empty container but place in trash collection. Do not contaminate food or feed by storage or disposal, or cleaning of equipment.
Terrazol	This product is corrosive to steel and many other metals. Do not transport or store in unlined metal containers.
Zinc phosphide	Store in a dry place. Do not store in or around the home.

Table 2. Disposal statements found on various types of pesticide containers.

Container type	Disposal statements
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of container in a sanitary landfill, or by other procedures approved by state and local authorities.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording).
Foil outer pouches of water soluble packets	Dispose of the empty foil pouch in the trash, as long as the water soluble packet is unbroken.