

Interpreting Pesticide Labels

A DEFINITION of *label* is “a display of written, printed, or graphic matter on a container to identify the substance it holds.” A label has a wealth of information for the person who is considering the purchase of a material or who is using a material. Labels are particularly important for hazardous substances, such as pesticides.



Objective:



Interpret the information provided on pesticide labels.

Key Terms:



active ingredient
“Caution”
common name
“Danger”
formulation

general-use pesticide
inert ingredients
“Keep out of reach of children”
restricted-use pesticide

signal words
surfactant
trade (brand) name
“Warning”

Pesticide Labels

A pesticide label informs the user about the contents of a container and about the safe use of a product. The label on a pesticide provides information about the active ingredient. It is the **active ingredient** that kills the pest. Some products on the market have low amounts of active ingredient. Use the information about the active ingredient as a basis for deciding which product to buy.

USING THE LABEL

A pesticide user should consider three important steps when dealing with a pesticide label. The steps are read the label, understand the label, and follow label directions.

Read the Label

Every user should invoke self-discipline to read and reread the label on a pesticide. This is the only way the user can find a proper handling and mixing procedure. The label should be read completely before any handling of the chemical takes place.

Most information listed on the label is required by law. Certain sections of the label are particularly important to the applicator. Close attention should be paid to the signal words, precautionary statements, and directions. It is always important to read the label, but there are five times when it is particularly important.

- ◆ **Before buying the pesticide**—Read the entire label before purchasing a pesticide to make sure the chemical you are considering is the best product for the job. Also, make sure that you have the proper equipment to do the job correctly.
- ◆ **Before mixing the pesticide**—Be certain to note all warnings and first-aid measures. Determine what protective clothing will be needed when you are handling the pesticide.
- ◆ **Before applying the pesticide**—Check the label again for restrictions on use and any special instructions. Determine the application rate for your specific use and calibrate equipment accordingly.
- ◆ **Before storing the pesticide**—Plan to store the pesticide safely to prevent unnecessary accidents and breakdown of product.
- ◆ **Before disposing of excess pesticide or the container**—Plan so that you have as little excess pesticide as possible. All pesticide waste must be disposed of according to law. Improper disposal of excess pesticide, spray mixture, or rinse water is a violation of federal law.



FIGURE 1. A pesticide container label has detailed information about the use of the product.

Understand the Label

Besides just reading the label, the pesticide applicator must understand the information printed on it. This may require the applicator to receive some special training. If, after reading the label, the applicator does not understand some piece of information on the label, the pesticide distributor should be contacted for clarification before the pesticide is applied.

Follow Label Directions

Just knowing what should be done is not enough. By law, users must follow label directions. Anyone using a pesticide in a manner that conflicts with its labeling can be charged with both civil and criminal penalties.

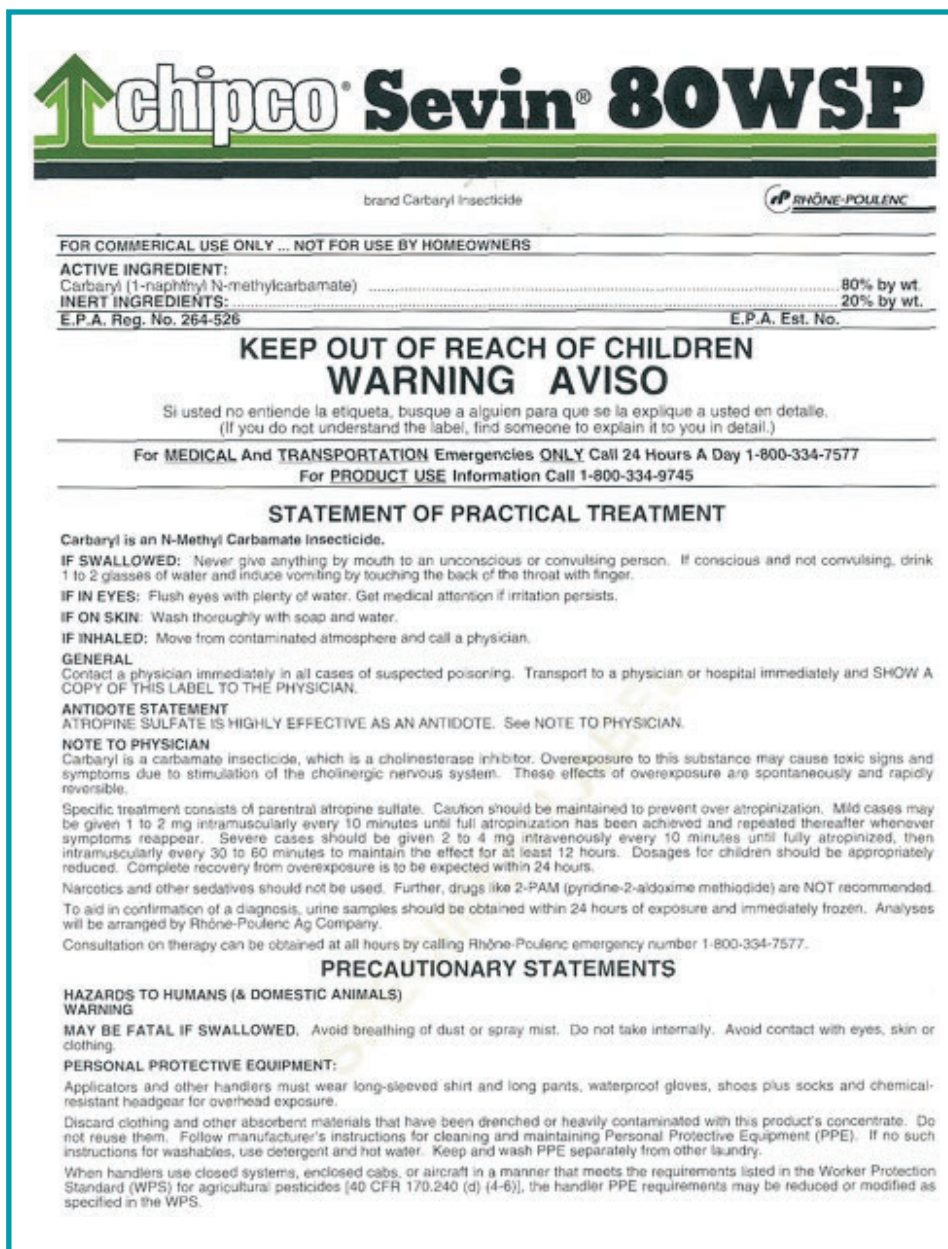


FIGURE 2. A sample pesticide label.

LABEL INFORMATION—FRONT PANEL

All pesticide labels must conform to standards set by federal law. The goal is for pesticide labels to include all the information necessary for safe and effective use of the products.

The front panel of a label provides the following basic information about a pesticide.

Use Classification

Use classification indicates whether the pesticide is a general-use or restricted-use pesticide. A **general-use pesticide** is a product designated as among the least hazardous pesticide

materials. A **restricted-use pesticide** is a product given this classification based on toxicity, the way the pesticide is used, and the environmental effect of the pesticide.

Trade (Brand) Name

The **trade (brand) name** is the product's name given by the manufacturer. For example, Roundup® is the trade name by Monsanto for glyphosate. Different manufacturers or even the same manufacturer can give a single chemical compound multiple names.



FIGURE 3. Take proper precautions when mixing and applying a pesticide. (Courtesy, U.S. Department of Agriculture)

Common Name

A **common name** is assigned to identify the active ingredient in a pesticide product. Regardless of the number of trade names a pesticide may have, its common name remains the same. Use of a common name may be compared with use of a scientific name when dealing with a plant.

Ingredients

The label on a pesticide provides information about the active ingredient. As stated earlier, it is the active ingredient that kills the pest. The label gives the name and concentration of the active ingredient in the product. For the **inert ingredients**, which are inactive, only the combined total concentration must be stated.

Formulation

Formulation is the form in which a pesticide product is offered for sale to the user. An active ingredient cannot usually be used alone in its pure form. Therefore, inactive ingredients, such as water, oil, surfactants, emulsifying agents, and other diluents, are combined with the active ingredient to make the formulation. A **surfactant** is a wetting agent that lowers the surface tension of a liquid and allows easier spreading of the pesticide. Examples of pesticide formulations are liquid emulsifiable concentrates (E or EC), wettable powders (W or WP), dry flowables (DF), solutions (S), granules (G), and dusts (D). Further dilution of the formulation with water is generally required before use.

Net Contents of Container

This is the amount of the total product in the container. It may be expressed in gallons, quarts, pints, pounds, or other units.

Signal Words

Signal words are required on every label to indicate the degree of toxicity and the potential danger of using the pesticide. Signal words are based on the LD₅₀ and LC₅₀ values of toxicity for the pesticide. **Danger** or “Danger—Poison” with a skull and crossbones, all in red, must appear on the label of every highly toxic pesticide. **Warning** is required on the label of every moderately toxic pesticide. **Caution** must be printed on the label of every pesticide with a low or very low toxicity. The child hazard warning **“Keep Out of Reach of Children”** must also appear on the label of every pesticide, regardless of the toxicity.

Precautionary Statements

Precautionary statements include information on first-aid treatment, potential environmental and human hazards, and flammability or explosion hazards.

Establishment Number

An EPA establishment number is given to identify the facility where the individual pesticide was manufactured, packaged, or formulated.

EPA Registration Number

An EPA registration number is proof that the product is registered with the Environmental Protection Agency (EPA).

Name and Address of Manufacturer

The company that manufactures and distributes the pesticide is clearly identified on the label. Normally, a phone number is given in the precautionary section so that the company can be reached in case of an emergency.

LABEL INFORMATION—SIDE AND BACK PANELS

The side and back panels provide more detailed information on the use of the pesticide. Information found here includes the following.

Hazardous Materials Warning Labels

Some containers have additional symbols on their labels, as required by the U.S. Department of Transportation (DOT). These symbols denote the nature of the chemicals. The small

number that appears in the lower portion of each symbol indicates which class of hazardous materials is represented.

Directions for Use

This section includes specific guidelines for properly using the product. The following is a general setup for the Directions for Use section:

- ◆ Sites that can be treated with the pesticide
- ◆ Target pest(s) the product will control
- ◆ Amount of chemical to use per acre
- ◆ Type of equipment and application methods that can be used
- ◆ Proper mixing procedures
- ◆ Time when the pesticide should be applied
- ◆ Reentry limitations
- ◆ Guidelines for storage and disposal
- ◆ Limitations on use

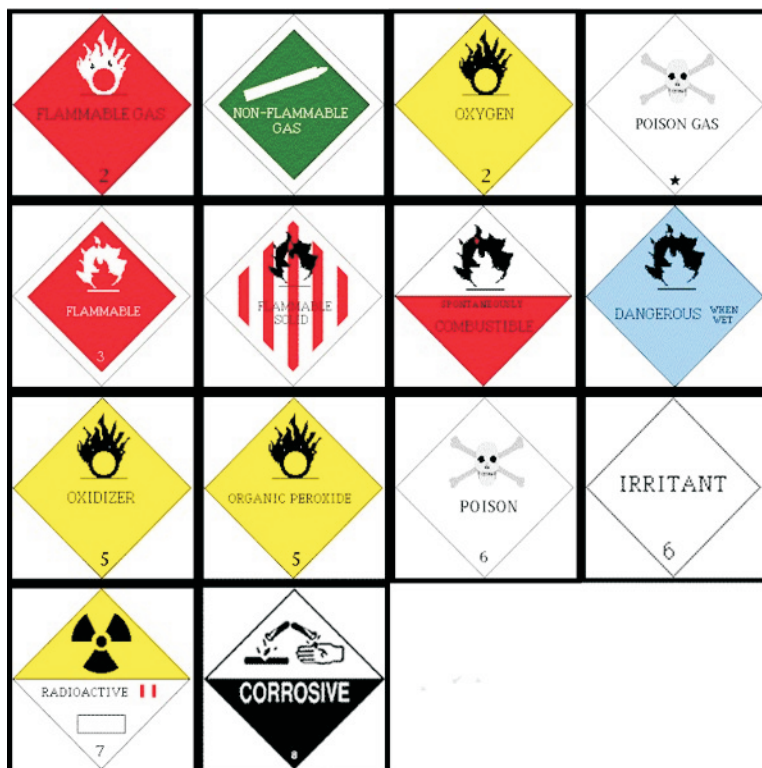


FIGURE 4. U.S. Department of Transportation labels. (Courtesy, U.S. Department of Transportation)

Notice of Limitations

This section includes statements relating to condition of sale, warranty limitation, inherent risks, and liability limitations.

Summary:



A pesticide user should read the label, understand the label, and follow label directions. The applicator should read the label before buying a pesticide, before mixing, before applying, before storing, and before disposing.

The front label includes the use classification, trade (brand) name, common name, ingredients, formulation, net contents of container, and signal words. Also, printed on the front label are precautionary statements, establishment number, EPA registration number, and name and address of manufacturer.

Signal words are required on every label. “Danger” or “Danger—Poison” must appear on the label of every highly toxic pesticide. “Warning” is required on the label of every moderately toxic pesticide. “Caution” must be printed on the label of every pesticide with a low or very low toxicity. “Keep Out of Reach of Children” must appear on the label of every pesticide, regardless of the toxicity.

The side and back panels display hazardous materials warning labels, directions for use, and notice of limitations.

Checking Your Knowledge:



1. What three things should a pesticide user do with a label?
2. When are the five times a user should read a pesticide label?
3. What label information appears on the front panel?
4. What signal words are used on a label?
5. What label information appears on the side and back panels?

Expanding Your Knowledge:



Go to a garden center and read the labels of pesticides on display. Pay special attention to the trade and common names, the active and inactive ingredients, the toxicity of the pesticides, the formulations, and the signal words.

Web Links:



Understanding Pesticide Labels

<http://www.pesticidesafety.uiuc.edu/facts/labels.html>

Pesticides: Learning About Labels

<http://pep.wsu.edu/factsheet/understanding.htm>

Understand Pesticide Labels

<http://72.14.203.104/search?q=cache:NYLeeFymgEcJ:www.extension.iastate.edu/Publications/RG202.pdf+pesticide+route+of+entry&hl=en&gl=us&ct=clnk&cd=2>

Pesticide Labels

http://pmep.cce.cornell.edu/facts-slides-self/pesticide_labels.html

Agricultural Career Profiles

<http://www.myaert.com/career-profiles>