

CHAPTER 3

PESTICIDE LABELING

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- Distinguish between the various types of pesticide registrations.
- Explain when to read the pesticide label.
- State who may use a pesticide.
- Accurately identify the common, chemical, and brand or trade name of a pesticide.
- Determine the percentage of active ingredient(s) in a formulation.
- Interpret the meaning of label signal words, symbols, and their relative hazard levels.
- Identify the following types of statements on a pesticide label:
 - Precautionary.
 - First aid.
 - Personal protective equipment.
 - Environmental, physical, or chemical hazards.
 - Mixing, loading, storage, and disposal.
 - Restricted entry and reentry.
- Describe how to interpret other documents and online resources referenced on the label.
- Distinguish between advisory and mandatory statements on a label.
- Discuss how to use information on a Safety Data Sheet.



The **pesticide label** is the main method of communication between a pesticide manufacturer and pesticide users. The information printed on and attached to the pesticide container is the label. **By law, pesticide users are required to comply with all instructions and use directions found on the pesticide product label.** Labeling includes the label itself plus all other

information about the product referenced on the label and given when you buy the product. For example, the labeling may include information that accompanies the product in the form of a comprehensive product-use manual, brochures, leaflets, and/or Safety Data Sheets (SDSs). Pesticide labeling includes instructions on how to use the product safely and correctly.

EPA APPROVAL OF PESTICIDE LABELING

As discussed in Chapter 2 (Federal Pesticide Laws and Regulations), no pesticide may be sold in the United States until the Environmental Protection Agency (EPA) has reviewed the manufacturer's application for registration and determined that the use of the product does not present an unreasonable risk to humans, wildlife, or the environment. As part of the registration process, EPA must approve all language that the manufac-

turer (registrant) proposes to include in the product labeling. Exceptions to the registration requirement are covered under a specific exemption (see "Types of Pesticide Registration" later in this chapter).

Only after EPA has reviewed the labeling and registered the product can a pesticide product be sold for use. If the manufacturer wants to change the information on the labeling after the product and labeling are registered, EPA must approve the change.



No pesticide may be sold in the U.S. before it has been reviewed by EPA.

THE LABEL

The label is an important tool for the safe and effective use of pesticides. Pesticide manufacturers are required by law to put certain information on the label. Failure to heed and follow label directives can result in a pesticide accident and legal action against the user. Labels are legal documents providing directions on how to mix, apply, store, and dispose of pesticide products.

Background of the Label

To appreciate the value of the information that appears on a pesticide label, one must consider the time, effort, and money spent to gather it. This research-based information takes at least six years to obtain and costs a chemical company millions of dollars. Manufacturers continually make and screen new compounds for possible pesticide use. For every new pesticide that successfully meets the standards, thou-

sands of other compounds are screened and discarded for various reasons. Once a promising pesticide is identified, its potential use must be evaluated to determine if it is a worthwhile candidate for the label registration process. Many carefully controlled tests are conducted to determine the effectiveness and safety of each pesticide under a wide range of environmental conditions.

Toxicity and Toxicological Tests

How poisonous or dangerous is a pesticide to humans, wildlife, and other organisms? Does the chemical cause any long-term (chronic) effects? Does it cause any skin (dermal) reactions? To determine these and other health effects, researchers administer the pesticide at various dosages to test animals, usually rats and mice. Newer methods now coming into use rely on mathematical models able to predict the

same toxic endpoints without involving animal testing.

Efficacy or Performance Tests

The company must have performance data to show that the pesticide controls a particular pest or group of pests on one or more hosts or sites, including plants, animals, soil, and structures. Data must show that the pesticide, when used for its intended purpose and according to directions, is a useful product.

Information is also needed on crop varieties, soil types, application methods and rates, and a number of required applications. Tests must show that the pests are controlled, crops or animals are not injured, yield and/or quality has been improved, and the pesticide provides a measurable benefit.

Degradation, Mobility, and Residue Tests

A series of studies shows how long it takes for the compound to break down (degrade) into harmless materials under various conditions. In addition, it is important to know if the pesticide moves through the soil into groundwater or if it moves into the plant from treated soil.

Residue studies are conducted for each application method on every treated crop or animal. These tests determine how much, if any, of the pesticide residue or its breakdown products

remain on or in the crop or animal at the time of harvest or slaughter. Pesticide residues on or in food or feed commodities must not exceed the residue tolerances established by EPA when the crop or animal (including meat, milk, and eggs) is ready for market or livestock feed.

Although specific tolerances are not included on product labels, **pre-harvest intervals** (days to harvest) and/or **preslaughter intervals** (days to slaughter) are often listed on labels of agricultural pesticides. These are the minimum number of days between the last application of a pesticide and the harvest of crops or the slaughter of livestock. Intervals are set by EPA to allow time for the pesticide to break down on crops or in livestock. Adhering to these intervals prevents unacceptable residues on food, feed, or animal products. If residues exceed the EPA tolerance or are found on commodities that do not have a specified tolerance, the commodity may be condemned and destroyed.

Effects on Wildlife and the Environment

The pesticide manufacturer must determine the effects of field applications of the pesticide on wildlife and the natural environment. Any potentially harmful effects that are recognized during these studies must be included in the environmental impact statement submitted to EPA.

TYPES OF PESTICIDE REGISTRATION

As mentioned in Chapter 2, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) has several types of registrations and exemptions that enable pesticides to be used in the United States. You are responsible for applying only pesticides registered or exempted from registration by EPA and your respective state, territory, or tribe.

Section 3 registrations are the most common. Look for the official EPA registration number required on the label (except for products that EPA classifies as minimum-risk pesticides) to

be sure you are buying an approved and registered product.

Special local need (SLN) registrations are categorized as Section 24(c). They allow states to expand or limit the uses of certain registered pesticides within their jurisdictions. For instance, some SLNs allow uses of pesticides for crops or sites not listed on the label. Others limit the uses of certain pesticides to address local concerns. Manufacturers must provide **supplemental labeling** for each SLN registration.



Potential adverse effects of pesticides to wildlife and the environment must be included in environmental impact statements submitted to EPA.

You must have SLN labeling in your possession to use a pesticide for that purpose. The registration numbers of special local need labeling include the SLN number and code for the state issuing the registration. These registrations are legal only in the region, state, or local area specified in the labeling. It is illegal to apply a pesticide that has an SLN registration from other states or regions.

Emergency exemptions under Section 18 address pest problems for which no pesticides are currently registered. A Section 18 exemption allows the sale and use of a registered pesticide product for a specific non-registered purpose during a specified period. EPA can issue an emergency exemption at the request of the state, tribe, or territory regulatory agency for a public health concern or other pest crisis. There must be no other feasible pesticide alternative to the exemption.

Regulations impose strict controls and require recordkeeping for all emergency uses. The state, tribe, or territory pesticide regulatory agency prescribes

application rates, safety precautions, and other vital application information. Applicators must have a copy of the Section 18 approval on hand to legally use the product.

Minimum-risk pesticides under Section 25(b) are exempt from registration provided the products satisfy certain conditions. Products identified as exempt pose a minimal risk to humans and the environment, do not require EPA label approval, and do not undergo review by EPA. Furthermore, these products have no label requirements for an EPA registration number, an EPA establishment number, any signal word, or any personal protective equipment (PPE).

To qualify for a Section 25(b) exemption from registration, each of the active ingredients in any such product must be on a list of specified minimal-risk active ingredients. Additionally, any inert ingredients in these products must also be listed as minimal-risk inert ingredients.

Minimum-risk pesticides still have certain label requirements imposed by EPA. Product labels may not claim to control microorganisms that pose a threat to human health. For example, the label may list a pest such as a mosquito or tick, but it must not claim to control any microorganisms that the pest transmits to humans.

Many states do not permit the sale of a Section 25(b) product unless it is first registered in the state.

WHEN TO READ THE PESTICIDE LABEL

It is your responsibility as the user to read and understand all labeling before buying, using, storing, or disposing of a pesticide. Read the label:

- **Before buying the pesticide**—Make sure the product is registered for your intended use. Confirm that there are no restrictions or other conditions that prohibit using this pesticide at the application site. Find out what PPE and special application equipment you will need.
- **Before mixing and applying the pesticide**—Determine what precautions to take to prevent exposure to people and non-target organisms. Learn what first aid and medical treatments are necessary should an accident occur. Be certain the product's use is suitable for weather conditions at the time of application. Also, be sure it controls the appropriate life stage of your pest.

- **When storing pesticides**—Find out how to store the pesticide properly. Understand any special precautions to prevent fire hazards.
- **Before disposing of unused pesticides and empty containers**—From the label, learn how to prevent environmental contamination and hazards to

people. Check with your state pesticide regulatory agency for any disposal restrictions and requirements. Find out whether your state has pesticide container recycling and waste disposal programs.



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Always read the label prior to purchasing and using the pesticide.

PARTS OF THE LABEL

Some labels are easy to understand; others are complicated. Each label component will be discussed in this section. See Figure 3.1 for an example of a pesticide label.

must list the official chemical names and/or common names of the active ingredients. Look at the following Tempo insecticide label excerpt as an example:

Trade, Brand, or Product Name

Every manufacturer has **trade names** for its products. Most companies register each trade name as a trademark. Various manufacturers use different trade names, even when the products contain the same active ingredient.

The **brand name** often indicates the type of formulation and the percentage of active ingredient present. For example, “Tempo 20WP” is a brand name. Tempo is the registered trade name, and the formulation is a wettable powder containing 20% active ingredient. The trade or brand name shows up plainly on the front panel of the label and is the one used in advertisements.

Tempo 20WP

Active Ingredient:
 β -Cyfluthrin, cyano(4-fluoro-3-phenoxyphenyl)methyl
 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate20%

Inert Ingredients.....80%

Ingredient Statement

Every pesticide label must list the active ingredients and the percentage of each active ingredient found in that particular product. The **active ingredient** (a.i.) is the chemical or chemicals in a pesticide product responsible for its pesticidal activity. It is the material in a pesticide formulation that actually controls a pest or performs a desired function (e.g., repellent or growth regulator). **Inert ingredients** are usually not named, but the label must show what percentage of the total contents they make up. The ingredient statement

The **chemical name** is the complex name that identifies the chemical components and structure of the pesticide’s active ingredient. This name must be listed in the ingredient statement on the label. For example, the chemical name of Tempo is:

β -Cyfluthrin, cyano(4-fluoro-3-phenoxyphenyl)methyl
 3-(2,2-dichloroethenyl)-
 2,2-dimethylcyclopropanecarboxylate

Because chemical names or active ingredients are usually complex, many are given a shorter **common name**. Only those common names officially accepted by EPA may be used in the ingredient statement on the pesticide label. The official common name is usually followed by the chemical name in the list of active ingredients. The common name for Tempo is cyfluthrin.

By purchasing pesticides according to the common or chemical names, you are certain of getting the right active ingredient, no matter what the brand name or formulation. Remember, not all pesticides with the same a.i. are labeled for the same uses or rates.

Use Classification Statement

Currently, EPA classifies every pesticide product as either restricted use or unclassified/general use. Every product that is federally classified as a restricted-use pesticide must have the following statement at the top of the front panel of the pesticide label:

RESTRICTED-USE PESTICIDE

For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

Pesticides labeled for restricted use demand special attention because there is reason to believe they could harm humans, livestock, wildlife, or the environment even when used according to label directions. The restricted-use statement indicates the specific hazard of that pesticide. For example, a product may be very toxic to humans and wildlife or pose a groundwater hazard. Persons using these products must be certified applicators or have received special training and have demonstrated a certain level of competence to ensure that they can handle these pesticides properly.

Unclassified pesticides are often called general-use pesticides. Typically, they have a lower toxicity with less potential to harm humans and the environment than restricted-use pesticides. Anyone can purchase and use them without special permits or restrictions.

Type of Pesticide

The type of pesticide is usually listed on the front panel of the pesticide label. This short statement indicates in

general terms what the product controls. Examples include:

- Insecticide for control of certain insects on fruits, nuts, and ornamentals.
- Herbicide for control of woody brush and broadleaf weeds.
- Insecticide for broad-spectrum control of crawling, flying, and wood-infesting insect pests on indoor and outdoor surfaces, as well as pests of trees, landscape ornamentals, and residential and commercial lawns.

Net Contents

The pesticide label must show how much product is in the container. This is expressed as pounds or ounces for dry formulations or as gallons, quarts, or pints for liquids. Liquid formulations may also list the pounds of active ingredient per gallon of product. Many labels now also include metric units (grams, kilograms, or liters) as part of the contents information.

Name and Address of Manufacturer

The law requires that the manufacturer or formulator of a pesticide product put its name and address on the label so you know who made or sold the product.

Emergency Telephone Number

Many pesticide manufacturers list an emergency telephone number on their product labels. These companies will assist anyone using their products in an emergency (e.g., poisoning, spill, or fire).

Registration Numbers

EPA registration numbers, required on all pesticide labels except Section 25(b) products, indicate that the pesticide product has been registered and the label approved by EPA. Most EPA registration numbers include just two sets of numbers, which identify the manufacturer and the specific product.

Occasionally a third set of numbers appears, which gives a distributor's identification number on labels of distributor products.

EXAMPLES OF EPA REGISTRATION NUMBERS

EPA Reg. No. 3120-280-1492

“3120” identifies the manufacturer, “280” identifies the specific product, and “1492” identifies the distributor.

EPA SLN No. PA-990005

“SLN” indicates special local need, “PA” means that the product is registered for use in Pennsylvania, “99” means it was registered in 1999, and “0005” means it was the fifth special local need product registered that year in Pennsylvania.

Establishment Number

An **EPA establishment number** (e.g., EPA Est. No. 5840-AZ-1) must be on the pesticide label to identify the facility that produced the product. This is necessary in case a problem arises or the product is found to be adulterated (contaminated) in any way. The “AZ” in the example indicates the product was manufactured in a specific facility in Arizona.

Signal Words and Symbols

Most pesticide labels must include a **signal word**. This designation indicates the relative acute toxicity of the product to humans and animals. The signal word must appear in large letters on the front panel of the pesticide label along with the statement “Keep Out of Reach of Children.” The following are signal words on pesticide labels:

- **DANGER—POISON**, *skull and crossbones symbol*—These words and symbol must appear on all products that are highly toxic by any route of entry into the body. The word “poison” must appear in red. These products can

cause death in very low doses. **PELIGRO**, the Spanish word for **DANGER**, must also appear on the label.

- **DANGER**—This word signals that the product is highly toxic by at least one route of entry. Products with this signal word can cause severe eye damage or skin irritation.
- **WARNING**—This word signals that the product is moderately toxic either orally, dermally, or through inhalation or causes moderate eye and skin irritation. **AVISO**, the Spanish word for **WARNING**, must also appear on the label.
- **CAUTION**—This word signals that the product is slightly toxic either orally, dermally, or through inhalation or causes slight eye and skin irritation. Although very low toxicity pesticides are not required to display a signal word, many manufacturers still include a **CAUTION** designation on the label of these products.

A detailed discussion on signal words and toxicity appears in Chapter 5, Pesticide Hazards and First Aid.

Precautionary Statements

All pesticide labels contain statements to help you decide what precautions to take to protect yourself, other people, or animals from pesticide exposure. Sometimes these statements are listed under the heading “Hazards to Humans and Domestic Animals.” Precautionary statements may be found in several sections of the label.

Routes of Entry Statements

Routes of entry statements indicate which route or routes of entry into the human body are particularly hazardous. Because many pesticide products are hazardous by more than one route, you should study these statements carefully.



Signal words indicate the relative acute toxicity of the product to humans and animals.

PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals

WARNING/AVISO

This product may cause skin sensitization reactions in certain individuals. Causes eye irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing spray mist.

STATEMENT OF PRACTICAL TREATMENT

If in eyes: Flush with plenty of water. Get medical attention if irritation persists.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

If swallowed: Do not induce vomiting. Promptly drink a large quantity of milk, egg whites, or gelatin solution. If these are not available, drink large quantities of water. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

If inhaled: Move victim to fresh air.

Be familiar with first aid procedures before using the pesticide.

A **DANGER** signal word followed by “May be fatal if swallowed or inhaled” gives you a far different warning than **DANGER** followed by “Corrosive—causes eye damage and severe skin burns.”

Routes of entry statements are not uniform on all labels; there are many variations. More than one precaution may appear on a label.

Typical **DANGER** label statements include:

- Fatal if swallowed.
- Poisonous if inhaled.
- Extremely hazardous by skin contact—rapidly absorbed through skin.

• Corrosive—causes eye damage and severe skin burns.

Typical **WARNING** label statements include:

- Harmful or fatal if swallowed.
- Harmful or fatal if absorbed through the skin.
- Harmful or fatal if inhaled.
- Causes skin and eye irritation.



Follow label instructions on the use of protective clothing and equipment.

Typical **CAUTION** label statements include:

- Harmful if swallowed.
- May be harmful if inhaled.
- May irritate eyes, nose, throat, and skin.

Specific Action Statements

Specific action statements usually follow the route of entry statements. Specific action statements give the precautions and PPE necessary to help reduce exposure to the pesticide. These statements are directly related to the toxicity of the pesticide product (signal word) and the routes of entry. **DANGER** labels typically contain statements such as:

- Do not breathe vapors or spray mist.
- Do not get on skin or clothing.
- Do not get in eyes.

Typical **WARNING** labels often combine specific action statements from **DANGER** and **CAUTION** labels.

CAUTION labels generally contain specific action statements that are less alarming than those on the **DANGER** label, indicating that the toxicity hazard is not as great. Examples include:

- Avoid contact with skin or clothing.
- Avoid breathing dust, vapors, or spray mists.
- Avoid getting in eyes.

Protective Clothing and Equipment Statements

Pesticide labels vary in the type of PPE information they contain. While some labels carry no such statement at all, other pesticide labels fully describe appropriate personal protective equipment. Follow all label statements on PPE or, if absent, consider the signal word, routes of entry statements, and specific action statements. Read the basic guidelines described in Chapters 5 and 6.

Other Precautionary Statements

Labels often list other precautions that should always be followed when handling the product. These commonsense, self-explanatory statements include:

- Do not contaminate food or feed.
- Remove and wash contaminated clothing before reuse.
- Wash thoroughly after handling and before eating or smoking.
- Wear clean clothes daily.
- Not for use or storage in and around a house.
- Do not allow children or domestic animals into the treated area.

First Aid Statements

First aid statements (formerly known as the Statement of Practical Treatment) list emergency treatments recommended in case of poisoning or accidental exposure. Typical statements include:

- In case of contact with skin, wash immediately with plenty of soap and clean water.
- In case of contact with eyes, flush with water for 15 minutes and get medical attention.
- In case of inhalation exposure, remove victim from contaminated area and give artificial respiration, if necessary.
- If swallowed, induce vomiting.

All DANGER labels and some WARNING and CAUTION labels contain a note to physicians describing the appropriate medical procedures and antidotes for poisoning emergencies. Always have the label readily available in case of an emergency.

Environmental Hazards

Pesticides can be harmful to the environment. Look for special warning statements on the label concerning environmental hazards.

Special Toxicity Statements

The label will say if a particular pesticide is especially hazardous to wildlife. Examples include:

- This product is highly toxic to bees.
- This product is extremely toxic to fish and aquatic invertebrates.
- This product is toxic to birds and other wildlife.

Special toxicity statements alert you to the special hazards of a product. They will help you choose the safest product for a particular job and remind you to take extra precautions.

General Environmental Statements

General environmental statements are reminders to follow certain commonsense procedures to avoid contaminating the environment. The absence of any or all of these statements does not mean that you do not need to

EXAMPLE OF AN ENVIRONMENTAL STATEMENT

Environmental Hazards

This product is toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Under some conditions, this chemical may also have a high potential for runoff into surface water for several weeks or months after application. Do not cultivate within 10 feet of aquatic areas so as to allow growth of vegetative filter strip. Drift from applications of this pesticide is likely to result in damage to sensitive aquatic invertebrates in water bodies adjacent to treatment area.

For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high-water mark, except under forest canopy when aerially applied to control forest pests. Do not contaminate water when disposing of equipment washwaters and rinsate. Do not apply when weather conditions favor drift or runoff from areas treated.

This pesticide demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

EXAMPLE OF AGRICULTURAL USE REQUIREMENTS

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. Exception: if the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, includes:

- Coveralls.
- Waterproof gloves.
- Shoes plus socks.

take adequate precautions. Sometimes these statements follow a specific toxicity statement and provide practical steps to avoid harming wildlife. Examples of general environmental statements include:

- Do not apply when runoff is likely to occur.
- Do not apply when weather conditions favor drift from treated areas.
- Do not contaminate water by improperly disposing of rinse water and other pesticide wastes.
- Do not apply when bees are likely to be in the area.

- Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.
- The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Physical or Chemical Hazards

The “Physical or Chemical Hazards” section of the label describes possible fire, explosion, or chemical hazards of the product. Examples include:

- **Flammable**—Do not use, pour, spill, or store near heat or open flame. Do not cut or weld container.
- **Corrosive**—Store only in a corrosion-resistant tank.

Agricultural Use Requirements

The “Agricultural Use Requirements” section is found only on the labels of agricultural products covered by the EPA Worker Protection Standard (WPS). The agricultural use statements link the pesticide product to the WPS regulations found in 40 CFR Part 170. Therefore, the user must follow the labeling as well as the WPS requirements. These requirements are intended to protect agricultural workers and handlers on farms and in forests, nurseries, and greenhouses through training, decontamination, notification, emergency assistance, personal protective equipment, and **restricted-entry intervals (REIs)**.

Restricted-Entry Intervals

Many pesticide labels covered by the WPS include a statement about a restricted-entry interval. The REI specifies how much time must pass between the pesticide application and the reentry of unprotected workers into a treated area.

The REI statement can be found under the heading “Agricultural Use Requirements.” If no REI or other restricted-entry statement appears on the label, then all persons should wait at least until sprays have dried or dusts have settled before reentering a treated area. If there are multiple REIs on a label, look in the “Directions for Use” section for each crop. If two or more pesticides are mixed together, you are required to follow the most restrictive (longer) REI.

Nonagricultural Use Requirements

The “Nonagricultural Use Requirements” section applies to pesticide uses that are not within the scope of the WPS. Examples include the application of pesticides to lawns, golf courses, ornamental plantings, structures (except greenhouses), aquatic areas, and rights-of-way. Specific reentry times are not generally listed for these uses. However, the label often cautions people and pets not to enter treated areas until the spray has dried or the dust has settled.

Storage and Disposal

All pesticide labels contain instructions for the appropriate storage and disposal of the pesticide, its rinsate, and its container. State and local laws may vary considerably, so specific instructions usually are not included. These statements typically appear in the “Storage and Disposal” section of the label or under headings such as “Important,” “Note,” or “General Instructions.” Examples include:

- Store herbicides away from fertilizers, insecticides, fungicides, seeds, and feed items.
- Store at temperatures above 32°F (0°C).

- Nonrefillable container. Do not reuse or refill this container.
- Do not contaminate water, food, or feed by storage or disposal.
- Triple rinse container promptly after emptying.
- Offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill.

If necessary, seek sound advice to determine the best storage and disposal procedures for your operation and location.

Directions for Use

The “Directions for Use” section provides instructions on how to use the product (see Figure 3.1). These instructions cover:

- The pests that the manufacturer claims the product will control.
- The crop, animal, or site the product is intended to protect.
- The proper mixing instructions.
- How much to use (rate) and how often.
- How close to harvest the product can be applied.
- Phytotoxicity (damage to plants) and other possible injury.
- Where and when the material should be applied.
- Plant-back, composting, grazing, and other restrictions.
- How to minimize drift.



Under the federal Worker Protection Standard (WPS), workers must be notified about areas treated with pesticides so they may avoid inadvertent exposures.

OTHER LABEL RESOURCES

Information Resources

Many terms used on labels describe when and how to use pesticides. Technical terms also appear

in leaflets and bulletins from local Cooperative Extension offices, land-grant universities, state and federal pesticide regulatory agencies, pesticide

STATEMENT OF PRACTICAL TREATMENT

Contact a doctor (physician), clinic, or hospital immediately in cases of suspected poisoning. Explain that the victim has been exposed to galactothion and describe his/her condition. After first aid is given take victim to clinic or hospital. If breathing has stopped, start artificial respiration immediately and maintain until doctor sees victim.

If swallowed: If patient is conscious and alert, give 2 or 3 glasses of water or milk to drink, and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention.

If on skin: Immediately flush the skin with plenty of water while removing contaminated clothing and shoes. See doctor immediately. *Galactothion is an organophosphate pesticide that inhibits cholinesterase.*

If inhaled: Remove to fresh air. If not breathing give artificial respiration. Get medical attention.

If in eyes: Hold eyelids open and flush with a steady stream of water for at least 15 minutes. Get medical attention.

Note to Physician

Antidote — administer atropine di-sulfate in large doses. TWO to Four mg. intravenously or intramuscularly as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear. 2-PAM chloride is also antidotal and may be administered in conjunction with atropine. **DO NOT GIVE MORPHINE OR TRANQUILIZERS.** Galactothion is a strong cholinesterase inhibitor affecting the central and peripheral nervous system and producing cardiac and respiratory depression. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of the poison may occur and fatal relapses have been reported after initial improvement. **VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS.**

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (& DOMESTIC ANIMALS)

DANGER: Fatal if absorbed through skin, fatal if swallowed, and poisonous if inhaled. Do not breathe vapors or spray mist. Do not get on skin or clothing. May be irritating to eyes and may cause mild skin sensitization. Keep away from domestic animals. Discontinue use if allergic reaction occurs.

Signs and symptoms of overexposure

Salivation, muscle tremors, nausea, watery eyes, difficulty breathing, vomiting, pinpoint eye pupils, excessive sweating, diarrhea, blurred vision, abdominal cramps, weakness, headache.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical resistance category selection chart.

Applicators and Other Handlers must wear:

Coveralls over long-sleeve shirt & long pants
Chemical-resistant gloves such as barrier laminate or vitron

Chemical-resistant footwear plus socks

Protective eyewear

Chemical-resistant headgear for overhead exposures
Chemical-resistant apron when cleaning equipment, mixing, or loading

Respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number TC-14G)

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

RESTRICTED USE PESTICIDE

Due to very high toxicity to humans and birds.

For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certificate.

VIP NO PEST GEL

ACTIVE INGREDIENT:

galactothion (0,0-diethyl methyl phosphorothiate)..... 20.9%
related isomers..... 1.1%

INERT INGREDIENTS: 78.00%

Total 100.00%

Net Contents: 5 Gallons

EPA Reg. No. 12345-10 EPA Est. 56787-CO-1

VIP Chemical Company

2527 VIP Drive

Biarspod, MI 22315

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of the gloves before removing.

ENVIRONMENTAL HAZARDS

This pesticide is highly toxic to aquatic invertebrates and wildlife. Birds in treated areas may be killed. Shrimp and other aquatic organisms may be killed at recommended application rates. Do not contaminate water by cleaning of equipment or disposal of wastes.

PHYSICAL AND CHEMICAL HAZARDS

Do not use or store near heat or open flame. Not for use or storage in or around the home.

KEEP OUT OF REACH OF CHILDREN

DANGER  **POISON**
PELIGRO

Si Usted no entiende la etiqueta, busque a alguien para se la explique a Usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Do not store under conditions which might adversely affect the container or its ability to function properly.

STORAGE: Do not store below temperature of 0° F.
CONTAINER DISPOSAL: Never reuse empty containers. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedure approved by state and local authorities.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

GENERAL DIRECTIONS

Spray Preparation: To assure a uniform product, agitate or shake all containers of this product prior to use. Use 50 mesh screens or equivalent slotted strainers in spray system. To prepare for spraying, fill tank to 1/2 the needed volume of water. Add the required amount of this insecticide and mix thoroughly by mechanical or hydraulic agitation. Finish filling tank with water to desired volume and thoroughly mix. Do not store spray mixture for prolonged periods. If tank mixes are to be used, VIP Pest-No must be fully dispersed in water first, followed by addition of the intended tank-mix material. **DO NOT USE MIXTURES THAT CURDLE, PRECIPITATE OR BECOME GREASY.**

Note: Do not add VIP No Pest to water with pH values below 3.0 or above 8.5.

DIRECTIONS FOR AERIAL OR GROUND SPRAY APPLICATION

Application timing: Begin application when insect populations reach economic threshold levels. Consult the Extension Service, professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area.

Application Instructions: Apply a minimum finished spray volume of 2 gallons per acre by air or 5 gallons per acre by ground unless otherwise directed under crop specific directions. For best results, it is important to obtain thorough and uniform spray coverage of the plant. Use higher dosage rates for heavy infestations, large larvae, or dense foliage. The specific length of control depends on environmental factors, plant growth, dosage rate, and degree of insect infestation

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), notification-to-workers, and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours. The REI is 72 hours in outdoor areas where the average annual rainfall is less than 25 inches a year.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls over long-sleeved shirt & long pants
- chemical-resistant footwear plus socks
- protective eyewear
- chemical-resistant headgear

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated area

Figure 3.1 Sample pesticide label (adapted from MSU Pesticide Applicator Core Training Manual).

manufacturers, and professional pest management associations. Your understanding of these terms will help you get the best results from pesticide applications. Refer to the glossary in this manual. If you do not understand the directions on a label, check with any of the sources listed above.

World Wide Web References on Pesticide Labels

A pesticide label may refer you to a website for additional use instructions or precautions. This means that all of the information necessary to use the pesticide may no longer be found on the pesticide container. This information is binding, so it is your responsibility as an applicator to seek and obtain it. If the website address has changed or is no longer available, you must contact the manufacturer and acquire the referenced material before making an application.

Digital Pesticide Specimen Labels

Many websites allow the downloading of sample or specimen pesticide labels. Such sites include EPA; state, tribe, or territory regulatory agencies; Cooperative Extension Service; registrants; publishing firms; and consulting companies, among others. While the information found on these sites can be useful and may help clarify use instructions, ***you are still bound by the labeling found on and with your pesticide container.***

Electronic or Web- Distributed Labeling

Regulatory agencies are considering significant changes to what constitutes the “official” pesticide label that an applicator must follow to comply with federal and state use laws. The agencies recognize that it may be desirable and useful to provide a legally binding label on the container and refer applicators to an “official” Internet site for the most up-to-date and customizable use directions. As a result, manufacturers are now able

to develop web-distributed labeling. However, concerns about liability, unfamiliarity with a new system of labeling, and quickly evolving technology mean that changes may occur slowly. If you encounter web-distributed labeling, you must carefully follow the instructions on and with the container as well as the instructions obtained from an EPA-approved website.

Mandatory and Advisory Statements

Statements on pesticide labels may be either mandatory or advisory. Label statements that you must follow in order to legally use the pesticide are **mandatory statements**. Recommendations or best management practices that the manufacturer has determined may result in better product performance or improved safety are **advisory statements**.

Mandatory Statements

Mandatory statements direct the user to take or avoid specific actions. The directions and precautions specify where, when, and how a pesticide is to be applied. Mandatory statements are generally written in imperative or directive sentences (e.g., “Do not use...”). These statements are meant to ensure the proper use of a pesticide and prevent unreasonable harm to the environment. Examples include:

- Wear chemical-resistant gloves.
- If swallowed, call a doctor.
- Do not apply within 66 feet of wells.
- Keep away from heat, sparks, and open flame.
- Apply immediately after mixing.

Advisory Statements

Advisory statements provide information on product characteristics and how to maximize safety and efficacy. Such statements cannot conflict with mandatory statements, must not be false or misleading, or otherwise violate statutory or regulatory provisions. Advisory statements are written in descriptive or nondirective terms.

The use of words such as “should,” “may,” or “recommend” in advisory statements is carefully screened by EPA to clarify that such statements do not have to be followed. However, these words might also imply that a prohibited practice is still permitted. In other words, users could infer that a particular use is permitted because a statement “recommending” against such a use does not have to be followed. EPA allows the use of “should,” “may,” “recommend,” or similar terms on a case-by-case basis as long as they are unambiguous and do not appear to cause these kinds of problems. A preferred advisory statement usually explains the purpose or benefit of doing something instead of asserting that it “should” be done without explanation.

The following are examples of hypothetical advisory statements:

- Latex gloves provide the best protection.
- Opening aluminum phosphide containers near an exhaust fan or other ventilation helps to ensure that the gas will be rapidly dispersed if the product flashes.
- If application is delayed after preparing a tank mix, agitation to re-mix the products ensures proper blending.
- Treatment along one side of interior partition walls where there are cracks in the slab or plumbing entry points prevents further infestation.
- Directing the spray mixture around the base of the cotton plants and using leaf lifters and shields on application equipment

will help minimize foliage contact and plant injury.

- If an emulsifiable formulation has been used, flushing the sprayer with a detergent solution at the end of the workday will help to ensure a clean sprayer and trouble-free operation.

Understanding the Difference

Because intermingling advisory and mandatory language may cause confusion and uncertainty, EPA directs manufacturers to clearly separate advisory and mandatory label statements. Section headings must be appropriate for the information that follows. For example, if a heading includes the term “recommended,” everything in that section must be purely advisory. If separation is not practical, the manufacturer must make sure it is clear that the intent of each statement is either mandatory or advisory.

Until the separation of advisory and mandatory statements is fully implemented, you will find older products with seemingly contradictory statements. When this occurs, consult with your state lead regulatory agency (or other pesticide regulatory body) for clarification.

The label provides a wealth of information. As explained above, failure to follow the instructions on a pesticide label can cause a serious pesticide accident. It may also constitute a legal violation subject to civil or criminal prosecution. Always remember that the label is a legal document. You are liable for any personal injury, crop or site damage, or pollution that occurs through the misuse of a pesticide.

SAFETY DATA SHEETS

Safety Data Sheets (formerly called Material Safety Data Sheets) provide more details about specific chemical and physical properties than do pesticide labels. Pesticide manufacturers are required to develop and provide

upon request an SDS for each product. Commercial establishments are required to keep SDSs and make them available to workers or others who may contact the substance, its diluted end product, or its residues.

Unlike the FIFRA label, which is designed specifically for the pesticide end user (i.e., the applicator), the SDS is a document regulated by the Occupational Safety and Health Administration and designed for use by multiple professionals (e.g., manufacturers, transporters, medical personnel, and firefighters). Thus, the SDS contains more detailed and technical information than the label about the pesticide's chemical and physical properties, toxicological and ecological information, first aid procedures, and emergency response.

You should use the SDS in conjunction with the pesticide label to provide a better understanding of the product. NEVER use it in place of the label!

In 2012, the naming and formatting of SDSs were radically changed to adhere to international treaties. As a result, the SDS of a pesticide product may have a different signal word than the label and will include pictograms not found on the label. Section 15, the regulatory section of the SDS, specifies what is on the pesticide label.

Appendix D describes the elements of an SDS.

SAFETY DATA SHEET SECTIONS

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First aid measures
5. Firefighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

Example of safety data sheet topics.

SUMMARY

Pesticide label language is strictly regulated by EPA in coordination with state regulatory agencies. It provides precise information on how to use pesticides correctly and safely. It is your responsibility as an applicator to read, understand, and follow label directions. Make sure the pesticide has both federal and state registration for its intended use(s).

Study all sections of a pesticide label and know where to find the specific directions and precautions for your pest control situation(s). Identify both the trade and common names of the chemical you are using, and be familiar with the product's active ingredients. Signal words and symbols help you recognize how acutely toxic (i.e., dangerous) the pesticide is to humans. Other parts of the label explain how, when, where, and

on what target pest the pesticide may be applied (e.g., directions for use; mixing and loading instructions). Labels also inform you how to respond to pesticide-related emergencies and what precautions to take to avoid harming yourself, other persons, the environment, or nontarget organisms (e.g., first aid statements, environmental hazards, storage and disposal, and physical or chemical hazards). Additionally, applicators are advised to follow best management practices that may not be on the label, such as leaving a buffer zone between the treated area and sensitive sites.

Pesticide labels in combination with Safety Data Sheets provide a wealth of information on the hazards associated with each pesticide. Carefully review these documents before applying any pesticide.

Review Questions

CHAPTER 3: PESTICIDE LABELING

Write the answers to the following questions, and then check your answers with those in Appendix A.

- Which group of pesticides is exempt from registration because it poses little or no risk to humans and the environment?
 - Restricted use.
 - Minimum risk.
 - Special local need.
- The active ingredient in Tempo 20WP is listed as β -Cyfluthrin, cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethyl)-2,2-dimethylcyclopropanecarboxylate. What does the term “Cyfluthrin” represent?
 - The brand name.
 - The chemical name.
 - The common name.
- Which statement about pesticide label names and ingredients is *true*?
 - Both the active ingredients and inert ingredients must be listed by chemical name.
 - Various manufacturers use different trade names, even though the products may contain the same active ingredient.
 - Common names are those officially accepted by the manufacturer.
- What is the purpose of the signal word?
 - Indicates the product’s relative acute toxicity to humans and animals.
 - Informs the user what type of PPE to wear.
 - Tells the user what type of first aid treatment to seek in case of exposure.
- The routes of entry statement, “Extremely hazardous by skin contact—rapidly absorbed through the skin,” on a label would most likely carry which signal word?
 - DANGER.
 - WARNING.
 - CAUTION.
- “Do not breathe vapors or spray mist” is an example of a:
 - Specific action statement.
 - Statement of practical treatment.
 - Routes of entry statement.
- Directions for mixing and loading a pesticide are usually found under:
 - Directions for use.
 - Environmental hazards.
 - Precautionary statements.
- “If swallowed, call a doctor” is an example of what kind of statement?
 - Routes of entry.
 - Advisory.
 - Mandatory.
- Who is responsible for developing SDSs for pesticides and providing them on request?
 - EPA.
 - OSHA.
 - The product manufacturer.

