

## LABELLING

Any pesticide sold and used in Canada must be registered by the Pest Management Regulatory Agency (PMRA). It must have an approved product label that contains key information on the pesticide. Information is based on PMRA approved studies carried out by the manufacturer. These studies involve human health, environmental concerns and effectiveness against specific pests.

The information on a pesticide label is very important. It helps applicators make sound decisions on pesticide storage, handling, application, and disposal. While each pesticide has its own label, the format of the label is standard. Those who buy and use pesticides must know how to interpret the label. Following label information protects the applicator, the public, and the environment. This also ensures the best level of pest control.

Material safety data sheets (MSDSs) are developed by product manufacturers. These are a major source of information on pesticides. MSDSs are **not** legal documents. The information on a MSDS is based on research data. This supports label information. MSDSs also have information to protect human health and the environment. MSDSs help applicators to make informed decisions on handling, applying, and storing pesticides.

### Learning Objectives

Completing this chapter will help you to:

- Use the information on pesticide product labels.
- Use the information on Material Safety Data Sheets (MSDSs).

## Pesticide Product Label

The pesticide label is a legal document. This is defined under the *Pest Control Products Act* (**see Glossary of Terms**). It is illegal to use a pesticide in any way other than for the purpose and in the manner stated on the label. Label information serves as a legal guide for proper handling and use. Critical information is lost if a label is removed or damaged. A pesticide can only be sold legally with a label on the container that is in good condition. Ensure that the container has a valid Canadian label before buying or handling a pesticide. It should provide the *Pest Control Products Act* registration number. If the label is lost or cannot be read after purchase, ask for a replacement from the vendor. Attach the new label to the container. A pesticide cannot be identified without the label. The label ensures safe handling and proper application rates.

**Do not buy or store a pesticide unless it has a proper label attached.**

Manufacturers often provide more information than what is found on the label. They may print information on the wrapper, or stickers/tags attached to the container. This supports label information. It does not serve as a legal substitute for it.

## Components of a Label

A pesticide label has two parts:

1. The front or principal display panel
2. The back or secondary display panel

## Principal Display Panel

The principal display panel is the front of a pesticide product label. This panel contains information that allows an applicator to identify a pesticide in a number of ways. The principal display panel also warns of hazards and their nature. Applicators must understand the information on the principal display panel. This ensures that the right product is bought and handled safely. There are nine items on the principal display panel (see Figure 3-1).

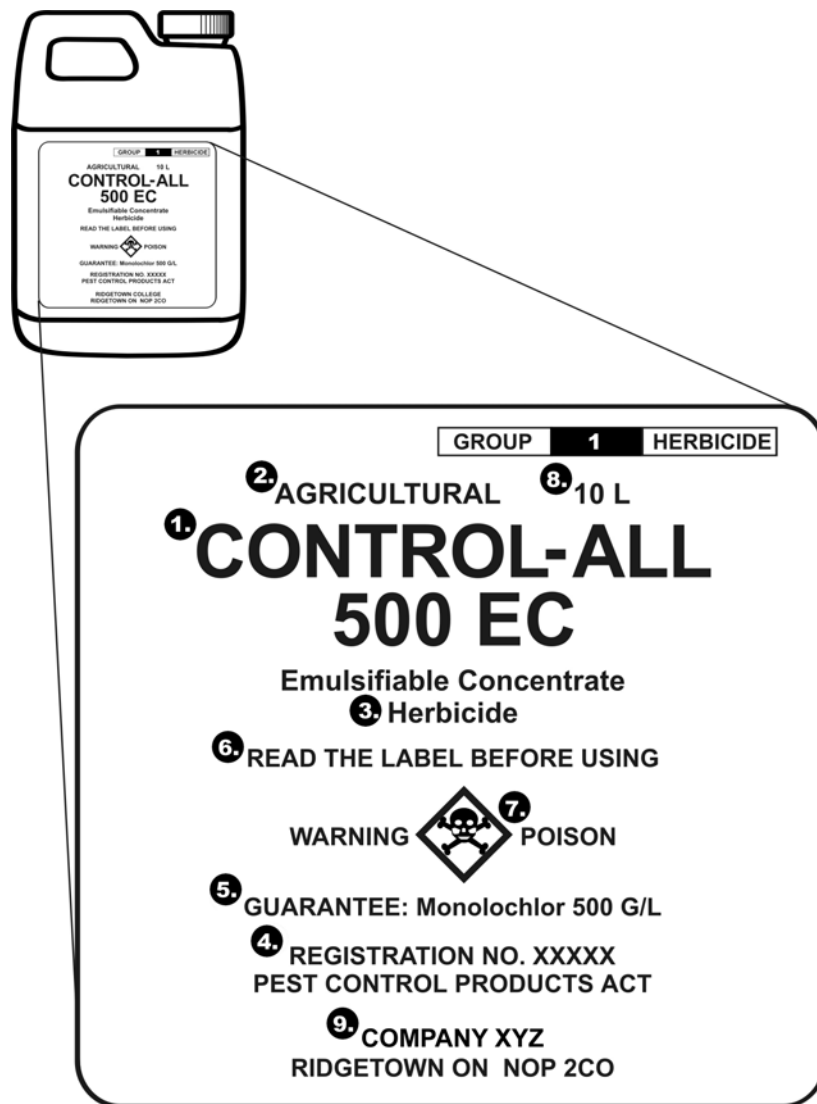


Figure: 3-1:  
Example of Principal Display Panel

### List of Items on Principal Display Panel

1. Trade name or product name
2. Class designation
3. Use or purpose
4. Registration number (P.C.P. Act number)
5. Guarantee statement
6. Directions to read the label
7. Precautionary shapes, symbols, and pictograms
8. Net contents
9. Name and address of the registrant

## 1. Trade Name or Product Name

The trade or product name includes:

- A. The **brand name** or **trade name** registered with the Pest Management Regulatory Agency. CONTROL-ALL is the registered trademark of the example pesticide.
- B. The **formulation** of the pesticide (this is either printed in full or shown as an abbreviation). This pesticide is a liquid, an emulsifiable concentrate (EC).
- C. A **description of use**. This pesticide is a herbicide used to control weeds.

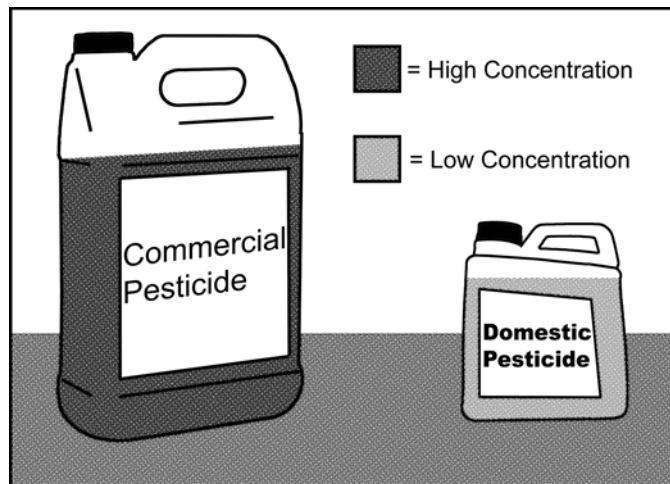
## 2. Classification

This provides the pesticide classification as assigned by the Pest Management Regulatory Agency. This is agreed to by the manufacturer. In Atlantic Canada, classification can determine how the pesticide is stored

and displayed for sale. It can also affect who may sell, buy, or apply the pesticide. There are four classifications (Domestic, Commercial, Restricted, Manufacturing).

### **Domestic Class**

Domestic class pesticides are registered for home use. They are packaged in small containers for a single application or use season. Domestic class pesticides pose a low risk to users or the environment when label directions are followed. They can be safely handled with little personal protective equipment (PPE), and there is no need for special training.



**Figure 3-2: Pesticide Concentration Differs according to Classification.**

### **Commercial Class (Agricultural or Industrial)**

Commercial class pesticides are designed for use in farming, forestry, industry, or other commercial uses. Active ingredients may be the same as those in Domestic class pesticides, but are more concentrated. Commercial class pesticides can pose a greater risk because of the greater concentration of the active ingredient or larger container size. Some products are classified as Commercial because they are too toxic, persistent, or hazardous for home use. Commercial class pesticide applicators in the Atlantic Region are required to demonstrate knowledge of:

- Safe handling
- Application

- Transport
- Storage procedures
- Proper use of personal protective equipment

**The words “Agricultural” or “Industrial” on a pesticide label indicate a Commercial class pesticide.**

Applicators should refer to provincial laws on license or certification requirements before buying or using Commercial class pesticides.

### **Restricted Class**

Restricted class pesticides have more limits placed on them than Commercial class pesticides. Limitations appear on the label. These can be due to increased toxicity, method of use (e.g., aerial application), or because they pose a specific risk to the environment. Limitations may involve:

- Pesticide display
- Storage
- Distribution
- Application
- User qualifications

Applicators are advised to refer to provincial laws on license or certification requirements. These must be met before buying or using these pesticides.

### **Manufacturing Class**

Manufacturing class pesticides are used in manufacturing, formulating, or repackaging. They are not designed for general use.

## **3. Use or Purpose**

The use of a pesticide refers to the type of pest it is intended to control. This use (e.g., as an insecticide, a herbicide, or a fungicide) will always be clearly stated on the principal display panel of a pesticide label. For example, the sample label indicates that this pesticide is a herbicide.

#### 4. Registration Number (P.C.P. Act Registration Number)

This number shows that the pesticide is registered by the Pest Management Regulatory Agency. It identifies the pesticide to the government and the manufacturer. The P.C.P. Act number must be shown on the principal display panel of every label. It can appear as REG. NO. 12345 P.C.P. ACT or Registration Number 12345 Pest Control Products Act. No two pesticides or pest control products are given the same number. This number can be used to find a pesticide's:

- Chemical nature
- Poisoning symptoms
- First aid treatment information
- Environmental toxicity

The registration number also gives emergency personnel quick access to information on how to deal with a poisoning.

- Pesticide or pest control products for sale or use in Canada must have a P.C.P. Act Registration Number.
- The P.C.P. Act Registration Number is unique to a pesticide formulation. This can be used to get detailed information.
- Pesticide or pest control products registered in the United States have an E.P.A. (Environmental Protection Agency) number. These cannot be sold or used in Canada.
- It is illegal to sell or use pesticide or pest control products in Canada that are labeled only with an E.P.A. number.

#### 5. Guarantee

The guarantee gives the common name of the active ingredients and the concentration of each. **The active ingredient is the part of the pesticide that controls the pest.** The chemical name is sometimes used on the label in place of the common name. There can be more than one active ingredient in a pesticide. Each active ingredient will be listed on the label.

- Monochlor is the common name of the active ingredient in the example label in **Figure 3-1**.
- The guarantee provides the concentration of active ingredient(s) that is contained in that particular pesticide.
- Concentration can be measured by the weight of active ingredient per unit volume.
- In the sample label, Control-All (**Figure 3-1**), we see that there are 500 grams of the active ingredient monochlor, in every litre of Control-All.
- Biological pesticides show the active ingredient as ITU(International Toxic Units)/mg

## 6. Directions to “Read the Label”

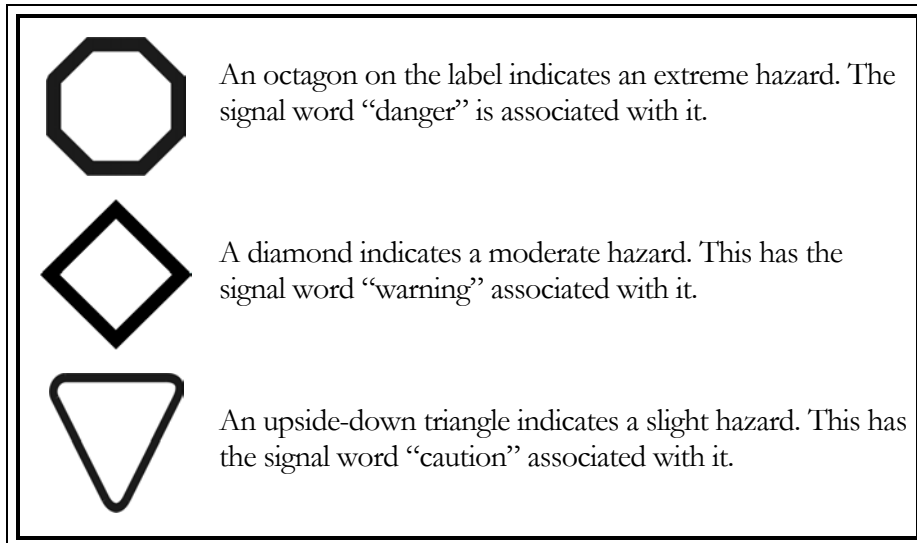
### “READ THE LABEL BEFORE USING.”

The *Pest Control Products Act* requires that this warning appear on the principal display panel. The label contains key information on proper storage, handling, and use. An applicator must read the label to ensure that the correct pesticide is chosen.

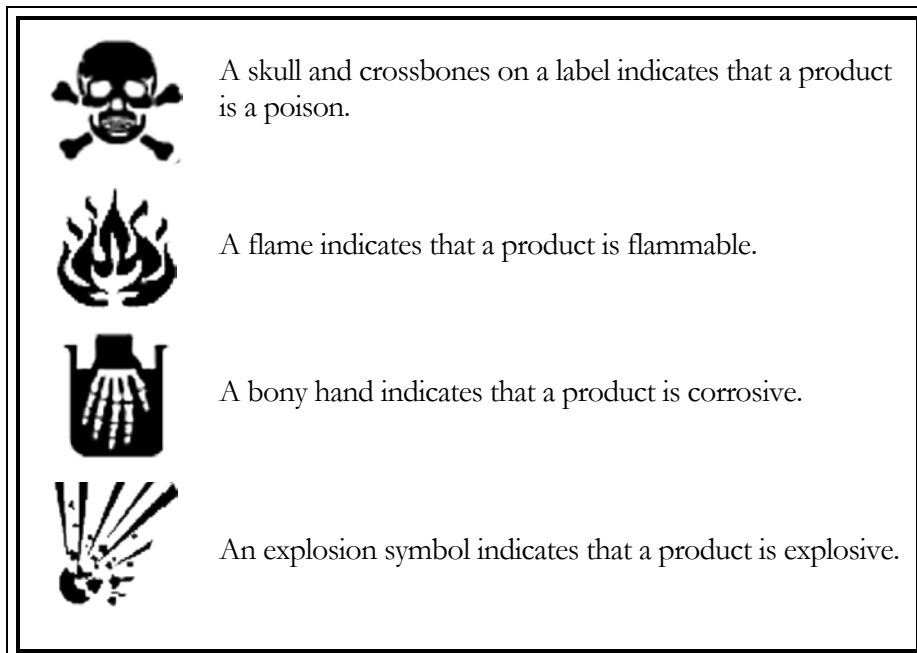
## 7. Precautionary Shapes, Symbols and Signal Words

Symbols (shapes and pictograms) and signal words indicate the type of hazard posed by a given pesticide. These are regulated under the *Pest Control Products Act* and must be included on the label.





**Figure 3-3: Precautionary Shapes**



**Figure 3-4: Precautionary Pictograms**

## Multiple Symbols

A pesticide can pose more than one type of hazard. All related precautionary symbols must appear on the label. **Only the warning signal word for the most dangerous hazard must appear.**

## No Symbols or Signal Word

A pesticide label may not have a precautionary symbol and/or signal word, if the hazards of the pesticide are such that they are not required. However, precautions still need to be taken, and the applicator or handler should still proceed with care when using the pesticide.

## 8. Net Contents

The net contents indicate the amount, by weight or volume, of pesticide in a package. This is given in metric units (ml, L, g, kg, etc.). **Figure 3.1** shows that there are 10 L (10 litres) of formulated product in this container.

## 9. Name and Address

The name and address of the company or organization that registered the pesticide (registrant) must appear on the label. Company XYZ is the registrant in the example label provided in **Figure 3-1**.

### In Review

The principal display panel gives important information on the pesticide or pest control product in the container. Each piece of information on the principal display panel is there for a reason. Applicators need to know how to read and use this information.

The label identifies the classification and use of a pesticide.

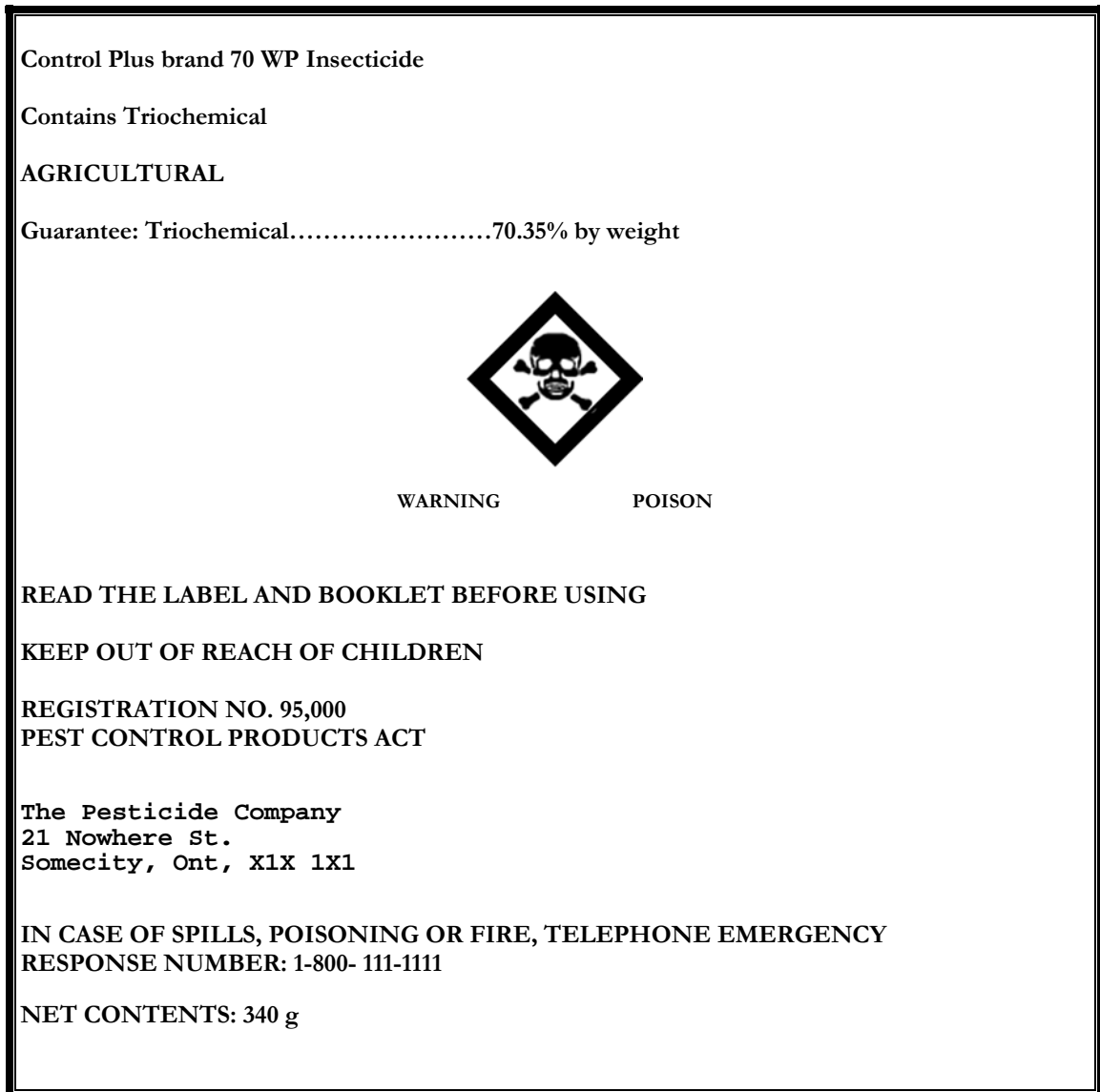
The name and address of the registrant is a contact for more information on the pesticide or pest control product.

The P.C.P. Act Registration Number on the principal display panel is unique to that product. This can be used to access information. For example, toxicological data can be accessed in case of a poisoning. Symbols and signal words indicate the general hazard.

## **Quiz # 3-1: Principal Display Panel**

*Answers are located in Appendix A of this manual.*

This page contains a sample copy of a pesticide label, principal display panel. Use the information found on this label to answer the questions which follow.



**Figure 3-6: Sample Label**

1. What is the trade or product name?

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2. What is this pesticide's P.C.P. Act Registration Number?

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3. What is the active ingredient in this pesticide?

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4. How much active ingredient is guaranteed in this pesticide?

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5. What type of formulation is this pesticide?

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6. Who is the manufacturer of this pesticide?

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7. What are the net contents of the product package?

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8. What is the classification of this pesticide?

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9. Does the precautionary symbol on this pesticide mean it is slightly poisonous, moderately poisonous, or very poisonous?

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## **Secondary Display Panel**

The back or side of a label is called the secondary display panel. For pesticides with a number of uses, the secondary display panel may be a small booklet attached to the label. This secondary panel gives instructions on how to use the pesticide and at what rate. This allows an applicator to match the pest control need to the pesticide. It can then be mixed at the right concentration and applied at the correct label rate. The secondary display panel identifies human or environmental hazards and gives first aid instructions.

### **List of Items on Secondary Display Panel.**

- 10. Directions for use**
- 11. Precaution statements**
- 12. Disposal methods**
- 13. First aid**
- 14. Toxicological information**
- 15. Notice to user**
- 16. Notice to buyer**

When Domestic class pesticides are packaged in small containers, the lower half of the secondary display panel may show information usually found on the principal display panel, such as:

- The name and address of the registrant/agent
- Net contents
- P.C.P. Act Registration Number
- The guarantee

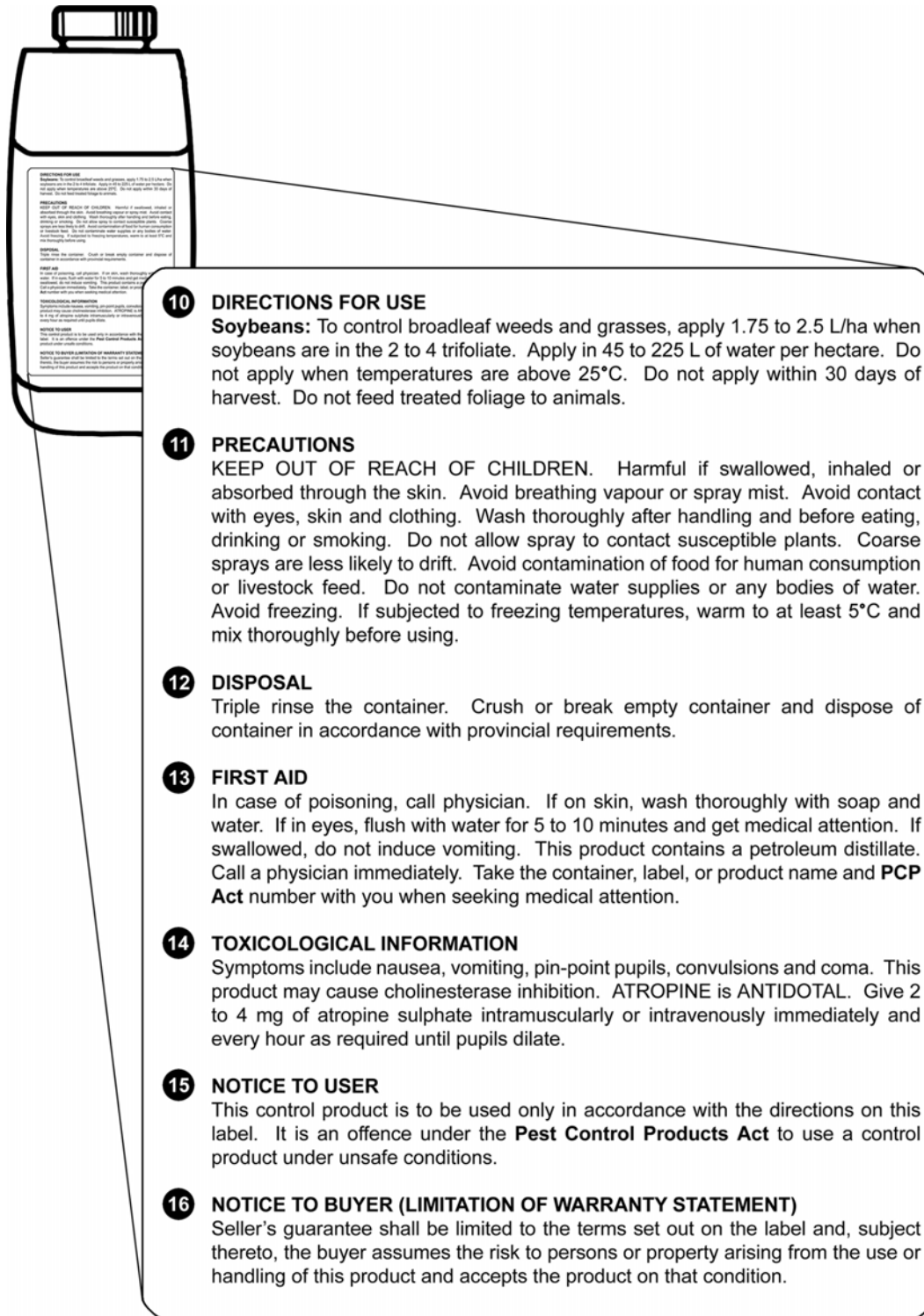


Figure 3-7: Example of Secondary Display Panel

## **10. Directions for Use, Use Area, and Limitations**

All registered pesticide uses must be stated on the label. If a use is not listed, it is considered illegal. Sometimes, a new registered use may not yet appear on the label. When in doubt, contact the Pest Management Regulatory Agency or provincial pesticide regulatory agency.

The directions for use include:

- Pests that the pesticide will control (weeds, insects, diseases, etc.)
- Crops or animals on which it can be used
- Amount of pesticide to use and how to mix it
- Application methods
- Approved rates of application
- Recommended application equipment
- What to avoid when using the pesticide
- Harvest instructions (pre-harvest interval, days-to-harvest, pre-slaughter interval)
- Re-entry times (the length of time to stay out of the treated area)
- Other restrictions
- Special application statement

Label statements vary with each pesticide. It is important to read and understand all label information before using a pesticide.

### **SPECIAL APPLICATION STATEMENT**

Pesticide labels often have a number of special application statements. These include the following:

- Aerial Application Statement
- Crop Rotation Statement
- Number of Applications Statement
- Buffer Zone Statement
- Forest and Woodlands Management Statements

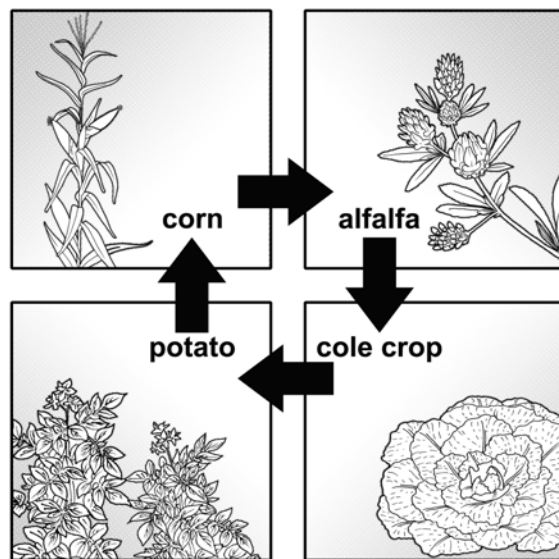
### **AERIAL APPLICATION STATEMENT**

The policy on aerial application of pesticide products was clarified on January 1, 2000. Pesticides cannot be applied by air unless the label gives

specific instructions to do so. Aerial applicators must follow all use instructions for mixing and use (buffers, rates, crop, etc.). Pesticides not registered for aerial application should bear the label statement “Do not apply by air”. Some pesticide labels may not reflect this policy change. Applicators are advised to contact the PMRA, or provincial regulatory authority if they are uncertain whether a pesticide is approved for aerial application.

**Aircraft may only apply pesticides specified for aerial application.**

**CROP ROTATION STATEMENT**



Crop rotation statements give the type of crop that can be safely planted the next year. An active ingredient can sometimes be carried over in the soil to the next use season. The label may state that only those crops named on the label may be planted.

**Figure 3-8: Crop Rotation**

**NUMBER OF APPLICATIONS STATEMENT**

Some pesticide labels state the total number of applications for a use season. This protects the applicator from:

- Excess pesticide residues in soil or food/feed crops
- Crop damage
- Pest resistance



### **BUFFER ZONE STATEMENT**

Buffer zones are areas left untreated to protect a nearby area. The need for a buffer zone during application is reviewed by the PMRA on a case-by-case basis. Decisions are based on:

- The organism that needs to be protected
- Environmental concentration of the pesticide being used that affects the organism
- Methods of application

Buffer zone statements vary with each pesticide and may not appear on all labels. These statements can give a setback distance (e.g., 10 metres). They can also be more general (e.g., avoid overspray or drift on wildlife habitats like shelterbelts, wetlands, woodlots, vegetated ditches, ponds, or lake banks).



**Figure 3-9: Buffer Zone**

You may be given provincial regulatory requirements and a label buffer zone statement. The stricter of the two must be followed when applying pesticides:

- To an area adjacent to aquatic habitats, such as streams, ponds, rivers, and lakes
- To areas that drain into these habitats
- To any other sensitive area identified

### **FOREST AND WOODLANDS MANAGEMENT STATEMENTS**

Aerial applications to forests, bodies of water, or residential areas are restricted uses. Forest and woodlands management areas are grouped as:

- Forest or forest management – Restricted (These include wooded areas or sites to be planted to forest of more than 500 hectares.)
- Woodlands management – Restricted (These include 500 hectares or less of wooded areas or sites to be planted to forest.)
- Woodlands management – Commercial (These include 500 hectares or less of a wooded area [e.g., tree nurseries, right-of-ways, and seed orchards].)

## 11. Precautionary Statements

Precautionary statements provide hazards to avoid when using or handling a pesticide. They explain how to use the pesticide safely. Steps are given to protect the applicator and others when mixing, applying, storing, and disposing of the pesticide. Precautionary statements can relate to human health or environmental concerns. You will find the child hazard warning “KEEP OUT OF REACH OF CHILDREN” here for Restrictive and Commercial class products. This warning must be on the principal display panel of Domestic class pesticides.

## 12. Disposal

This section gives information on safe disposal of empty containers. See **Chapter 2: Regulations** for details on provincially approved methods of container disposal.

## 13. First Aid Instructions

First aid instructions provide actions that should be taken if someone is poisoned or injured by a pesticide. Applicators should read this section with care before using any pesticide.

## 14. Toxicological Information

Toxicological information describes signs and symptoms of pesticide poisoning. This information can tell medical authorities what antidote to use. It is important to give this information to medical personnel if there is an accident.

**Medical personnel can obtain additional information on a pesticide by referencing the P.C.P. Act Registration Number.**

## **15. Notice to User**

The Notice to User tells the applicator to follow directions on the label. It is against the law to use a pesticide in a manner not approved on the product label.

## **16. Notice to Buyer**

The Notice to Buyer can also appear as a Seller's Guarantee. It states that the guarantee is limited to the label instructions. The buyer accepts all risks associated with the pesticide.

### **In Review**

The secondary display panel tells the applicator:

- Where the pesticide may be used
- Which pests it will control
- Specific application rates

The secondary display panel allows an applicator to make an informed decision on choosing the best pesticide to control a pest. Correct mixing rates are given to ensure that pesticides are applied at a proper rate. Precautionary or special application statements are found on the secondary display panel. These warn the applicator of possible human or environmental hazards. Statements on the need for crop rotation can address:

- Carry-over of active ingredient to the next growing season
- Concerns of residues in crops

Pesticides toxic to aquatic life may have special statements calling for a buffer from water.

The secondary display panel gives the symptoms of poisoning and first aid instructions for that pesticide. This allows quick action in the case of a poisoning or exposure.

## Quiz # 3-2: Secondary Display Panel

The next few pages contain a sample copy of a pesticide label. Use the information found on this label to answer the questions which follow. This is not a complete label! As with all pesticides or pest control products, read the entire label before using.


### Sample Label

Control Plus brand 70 WP Insecticide

Contains Triochemical

AGRICULTURAL

Guarantee: Triochemical.....70.35% by weight



WARNING                      POISON

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

REGISTRATION NO. 95,000  
PEST CONTROL PRODUCTS ACT

The Pesticide Company  
21 Nowhere St.  
Somecity, Ont, X1X 1X1

IN CASE OF SPILLS, POISONING OR FIRE, TELEPHONE EMERGENCY  
RESPONSE NUMBER: 1-800- 111-1111

NET CONTENTS: 340 g

Figure 3-10: Sample Label

## APPLICATOR CORE

### PRECAUTIONS:

**KEEP OUT OF REACH OF CHILDREN.** Harmful if inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Avoid contact with eyes, skin or clothing. Keep away from domestic animals. Wear long sleeved shirt, long pants and chemical resistant gloves during mixing, loading, applying, and clean-up and repair activities. Workers should not enter treated areas for 12 hours following application. Discard clothing that has been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment. Keep and clean personal protective equipment separate from other laundry and household items. Users should wash their hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if clothing becomes contaminated by pesticide. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing them. As soon as possible, wash thoroughly and change into clean clothing. Do not apply Control Plus brand 70 WP Insecticide directly to water, or to areas where surface water is present. Do not contaminate water when disposing of equipment wash water or rinsate. Do not contaminate water used for irrigation or domestic purposes.

### ENVIRONMENTAL PRECAUTIONS:

A buffer zone of 20 meters for application by ground boom sprayer, should be established between the last spray swath and the edge of aquatic systems such as rivers, lakes, ponds, streams and other bodies of water. A buffer zone of 2 meters for application by ground boom sprayer should be established between the last spray swath and the edge of terrestrial habitats such as hedgerows, windbreaks, woodlots, vegetative strips and other vegetation. Triochemical is toxic to honey bees exposed to direct treatment. Do not apply when bees are present in the area to be treated.

### FIRST AID:

Contact a physician IMMEDIATELY in all cases of suspected poisoning. Transport patient to a physician or hospital IMMEDIATELY taking container, label or product name and Pest Control Products Act Registration Number with you when seeking medical attention.

**IF SWALLOWED:** Call a physician or Poison Control Center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, by administering syrup of ipecac. **This should only be given upon the instruction of a Poison Control Centre or doctor, and if the patient is alert!** If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.

Figure 3-10: Sample Label, cont'd.

If in Eyes: IMMEDIATELY flush eyes with plenty of water.  
 If on Skin: Wash thoroughly with soap and water.  
 If Inhaled: Move from contaminated area and call a physician.

**TOXICOLOGICAL INFORMATION:**

There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient.

**STORAGE CONDITIONS:**

Do not store in or around the home. Store unused product in a cool, ventilated, dry, locked area. Do not allow prolonged storage in areas where temperatures frequently exceed 46°C (115°F). Never transfer this product to another container for storage.

**DISPOSAL:**

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty rinsed container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in the event of a spill and for clean up of spills.

**NOTICE TO USER:** This control product is to be used only in accordance with the directions on this label. It is an offense under the Pest Control Products Act to use a control product under unsafe conditions

**NOTICE TO BUYER:** Seller’s guarantee shall be limited to the terms set out on the label and, subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

**DIRECTIONS FOR USE:**

**METHOD OF APPLICATION:** Apply by ground only. Do NOT apply by air.

**APPLICATION TIMING:**

Begin application when insect populations reach recognized economic threshold levels. Consult the provincial extension service, or professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area.

**MIXING INSTRUCTIONS**

1. Fill tank ¼ full with the required amount of total spray volume of water.
2. Add Control Plus brand 70 WP Insecticide at recommended rates for the pest and crop type and begin agitation.
3. Allow to mix in tank for 2 minutes or until thoroughly mixed before applying.

Figure 3-10: Sample Label, cont’d.

## APPLICATOR CORE

### ROW CROPS

Apply a minimum spray volume of 200 L/ha by ground unless otherwise directed under specific crop directions. For best results, it is important to obtain thorough and uniform spray coverage of the plant. Use higher dosage rates for heavy infestations or dense foliage. The specific length of residual control depends on environmental factors, plant growth, dosage rate, and degree of insect infestation.

To clean the sprayer after use, drain and flush with water. Use rinsings on crop according to label instructions or dispose of in an approved manner (See Storage and Disposal).

### FIELD CROPS

To achieve optimum pest control, it is important to obtain thorough and uniform spray coverage of the plant. Choose a spray volume appropriate for the stage of growth or height of crop and amount of foliage that will provide thorough coverage throughout the canopy. Use higher dosage rates for heavy infestations or dense foliage. The specific length of residual control depends on environmental factors, plant growth, degree of insect infestation and dosage rate.

To clean the sprayer after use, drain and flush with water. Use rinsings on crop according to label instructions or dispose of in an approved manner (See Storage and Disposal).

### INTEGRATED PEST MANAGEMENT (IPM) USE OF THIS PRODUCT

Control Plus brand 70 WP Insecticide can be effectively utilized in IPM programs. Control Plus brand 70 WP has been shown to leave substantial populations of many beneficial insects and spiders after use. The lower rates allow for maximum beneficial survival and faster rebound of beneficial populations.

### RESISTANCE MANAGEMENT

Appropriate resistance management strategies should be followed. To delay insecticide resistance:

- Where possible, rotate the use of this pesticide with pesticides from different groups that are registered to control the same pests.
- Insecticide use should be based on an integrated pest management (IPM) program that includes crop scouting and record keeping and considers cultural, biological, and other pest control practices.
- Monitor treated pest populations for resistance development.
- Contact the local extension specialist or certified crop advisor for any additional pesticide resistance-management and IPM recommendations for the specific site and pest problems in the area.
- For further information or to report suspected resistance, contact The Pesticide Company at 1-800-111-1111.

**Figure 3-10: Sample Label, cont'd.**

<b>COLE CROPS</b>				
Spray Volume for Cole Crops: Apply in a minimum spray volume of 200 L/ha by ground application.				
<b>SITE</b>	<b>PEST</b>	<b>RATE: GRAMS Control Plus /HA</b>	<b>SPECIFIC DIRECTIONS</b>	<b>RESTRICTIONS AND PRECAUTIONS: Cole Crops</b>
<b>COLE CROPS</b> Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kale, Kohlrabi, Mustard Greens, Mustard, Spinach, Rape Greens	Aphids	56-86	Begin applications when economic threshold levels have been reached. Thorough coverage is important to obtain optimum control.	<ul style="list-style-type: none"> <li>• For any of the pests listed, use the highest rate under heavy pest pressure.</li> <li>• Do not make more than 5 applications per season.</li> <li>• Do not apply more than once every 7 days.</li> <li>• Do not apply less than 7 days before harvest.</li> <li>• There are no rotational crop plant back restrictions for this product.</li> </ul>
<b>FIELD CROPS</b>				
Spray Volume for Field Crops: Apply in a minimum spray volume of 500 L/ha by ground application.				
<b>SITE</b>	<b>PEST</b>	<b>RATE: GRAMS Control Plus/HA</b>	<b>SPECIFIC DIRECTIONS</b>	<b>RESTRICTIONS AND PRECAUTIONS: Field Crops</b>
<b>FIELD CROPS</b> Wheat, Barley	Aphids Leafhoppers	80-120	Begin applications when economic thresholds levels have been reached. Adequate coverage is essential for optimum control. Consult your local extension service for recommendations.	<ul style="list-style-type: none"> <li>• For any of the pests listed above, use the high rate under heavy pest pressure.</li> <li>• Do not make more than 4 applications per season.</li> <li>• Do not apply more than once every 12 days.</li> <li>• Do not apply less than 7 days on barley before harvest.</li> <li>• Do not apply less than 15 days on wheat before harvest.</li> </ul>
	Wheat moth Grasshoppers	120-240 67-240		
Control Plus is a trademark of The Pesticide Company				

Figure 3-10: Sample Label, cont'd.



## Questions

*Answers are located in Appendix A of this manual.*

1. Is this product suitable for use in fixed wing aircraft?  
\_\_\_\_\_
  
2. For field crops in general, how much water should be used with the rates given on the label?  
\_\_\_\_\_
  
3. How long should you wait before making a second application of this product in field crops? \_\_\_\_\_
  
4. Place a checkmark beside each of the following crop/pest combinations on which you can use this product.  
  
\_\_\_\_\_ Wheat/wheat moth  
\_\_\_\_\_ Cranberries/Cranberry girdler  
\_\_\_\_\_ Rutabagas/Aphids  
\_\_\_\_\_ Broccoli/Cabbage looper  
\_\_\_\_\_ Broccoli/Aphids  
\_\_\_\_\_ Rape Greens/Diamondback moths  
\_\_\_\_\_ Wheat/Grasshopper
  
5. How many days must you wait after application before you can harvest the following crops (pre-harvest interval)?  
  
\_\_\_\_\_ Broccoli  
\_\_\_\_\_ Wheat  
\_\_\_\_\_ Barley
  
6. What is the correct rate of application for the following crop/pest combinations?  
\_\_\_\_\_ Cabbage/Aphids  
\_\_\_\_\_ Barley/Leafhoppers  
\_\_\_\_\_ Wheat/Wheat moth  
\_\_\_\_\_ Barley/Grasshopper

7. What is the antidote for triochemical? \_\_\_\_\_  
\_\_\_\_\_

8. What protective clothing and equipment should be worn when handling this product?  
\_\_\_\_\_  
\_\_\_\_\_

9. How long must you wait before entering a treated area without protective clothing (re-entry time)?  
\_\_\_\_\_

10. Can you use this product on food crops grown in a greenhouse?  
\_\_\_\_\_

11. What should you do if the product has been swallowed?  
\_\_\_\_\_  
\_\_\_\_\_

12. Should you reuse empty containers from this product? \_\_\_\_\_

## **Material Safety Data Sheets (MSDSs)**

A Material Safety Data Sheet (MSDS) provides information on health hazards, personal safety, and environmental protection for hazardous products. They are divided into nine sections. The order of these sections varies among manufacturers. Information includes the following:

### **1. Product Information**

Product information gives the trade name, chemical name, and primary use of the product. It also includes the name, address, and emergency telephone numbers of the manufacturer and supplier.

### **2. Hazardous Ingredients**

The active ingredient is listed in this section. Other ingredients may be listed if included in the pesticide formulation. Chemical registration numbers and transportation classification are given.

### **3. Physical Data**

Physical data includes information on a product's appearance, odour, specific gravity, pH, boiling point, etc.

### **4. Occupational Procedures and Prevention Measures**

Occupational procedures and prevention measures provide information on safe handling and storage. This section identifies personal protective equipment needed when handling or applying the product (e.g., eye, skin, and respiratory protection).

## **5. First Aid and Emergency Procedures**

First aid and emergency procedures explain what to do if someone is exposed to the product.

## **6. Fire and Explosion Hazard**

The fire and explosion hazard section gives the temperature of the flash point and the fire point for the pesticide. Guidelines are provided for fighting a fire that involves a given product.

## **7. Toxicity and Health Effects**

The toxicity and health effects section presents manufacturer research on human health effects of product exposure. This data can help medical personnel during an emergency.

## **8. Reactivity Data**

Special chemical properties of the product are given in this section. Acceptable storage temperatures are listed for the product.

## **9. Preparation Date and Group**

This section tells who prepared the MSDS and when it was done. MSDSs must be updated at least every three years, or within 3 months if a pesticide is changed.

<b>MATERIAL SAFETY DATA SHEET</b>		<b>THE PESTICIDE COMPANY</b> Nowhere St. Some City, Ont X1X 1X1 Emergency Number - 24 hours: 519-000-0000
<b>Chemical Product and Company Identification</b>		
<b>1</b>	<b>Product Identifier:</b> <b>Registration Number:</b> <b>Chemical Class:</b>  <b>Product Use:</b>	CONTROL-ALL 500 EC 54321 aromatic hydrocarbon solvent 40%  herbicide to control broadleaf weeds and grasses
<b>9</b>	<b>Preparation Date:</b> <b>Supercedes:</b>  <b>Manufacturer/Distributor:</b>	05/21/04 08/11/02  see above
<b>Composition/Information on Ingredients</b>		
<b>2</b>	<b>Active Ingredient:</b> <b>CAS No:</b> <b>Chemical Identity:</b>	monolochlor, 500 g/L emulsifiable concentrate 10101-22-3 3-(1-methylethyl)-2H-2,1-monolochlor
<b>Hazards Identification</b>		
<b>7</b>	<b>Warning Statements:</b>  <b>Potential Health Effects:</b>	PRECAUTION! Keep out of reach of children. MAY CAUSE EYE AND SKIN IRRITATION. HARMFUL IF SWALLOWED. This product is slightly toxic to fish and aquatic invertebrates.  Likely routes of exposure: eyes, skin, lungs, mouth. Eye contact: may cause eye irritation. Skin contact: may cause skin irritation. Prolonged contact may cause increased skin irritation. Inhalation: may cause irritation to the nose, throat and lungs. Ingestion: ingestion may produce irritation of the mouth, nausea, vomiting and diarrhea.
<b>5 First Aid Measures</b>		
	<b>Skin Contact:</b>  <b>Eye Contact:</b>  <b>Inhalation</b>  <b>Ingestion:</b>  <b>Storage Precautions:</b>	Immediately remove contaminated clothing and wash affected skin with soap and water.  Flush eyes with plenty of water for 15 minutes and seek medical advice immediately.  Remove victim to fresh air and if breathing has stopped, give artificial respiration. Seek medical attention. If swallowed, do not induce vomiting but rush victim to nearest hospital taking the container or this sheet with you.  Use gastric lavages and saline cathartics.  Do not handle or store near flame, heat or strong oxidants. Do not store near food or animal feed. Avoid freezing temperatures.

Figure: 3-11: Sample Material Safety Data Sheet (MSDS)

MATERIAL SAFETY DATA SHEET		<b>THE PESTICIDE COMPANY</b> Nowhere St. Some City, Ont X1X 1X1 Emergency Number - 24 hours: 519-000-0000
<b>6 Fire Fighting Measures</b>		
<b>Flash Point and Method:</b> <b>Ignition Point:</b> <b>Extinguishing Media:</b>	70°C Setaflash closed cup N/D Dry chemical, foam or carbon dioxide. Water or foam may cause frothing when applied to flammable liquids with flash points above 100°C. Fire-fighters should wear full protective clothing and self-contained breathing apparatus.	
<b>Accidental Release Measures</b>		
<b>Procedures for dealing with release or spills:</b> Before handling any spills, wear protective equipment. For small spills, absorb with sand or other non-combustible material like clay or kitty litter. For large spills, dike up and contain the spill. Collect into a suitable container. Absorb the rest with sand, earth or clay. Decontaminate the area and equipment with laundry bleach or hydrated lime.		
<b>Handling and Storage</b>		
<b>Handling Practices:</b> Keep Out of Reach of Children. Avoid contact with eyes, skin or clothing, and wash immediately after exposure. Avoid contact with eyes, skin or clothing, and wash immediately after exposure. Avoid inhalation of spray. Always wash thoroughly after handling. Remove contaminated clothing promptly, and wash it before wearing again. <b>Appropriate storage practices:</b> Store in a well-ventilated, secure area set aside for pesticides. Do not store food, beverages, or tobacco in the same area. Protect from heat.		
<b>4 Exposure Control/Personal Protection</b>		
<b>Personal Protective Measures:</b> <b>Preventative Measures:</b> <b>Technical Protective Measures:</b>	Wear respirator, neoprene gloves, goggles or face shield Do not smoke, eat or drink while working with this product and wash thoroughly before doing so. Avoid breathing vapours, ventilate enclosed spaces and wear cartridge type respirator.	
<b>3 Physical and Chemical Properties</b>		
<b>Appearance:</b> <b>pH:</b> <b>Odour:</b> <b>Form:</b> <b>Water Solubility:</b> <b>Boiling Point:</b> <b>Specific Gravity:</b>	clear, viscous, yellow 8 -8.5 aromatic odour liquid miscible EC formulation 86°C 1.002	

Figure: 3-11: Sample MSDS, cont'd.

<b>MATERIAL SAFETY DATA SHEET</b>		<b>THE PESTICIDE COMPANY</b> Nowhere St. Some City, Ont X1X 1X1 Emergency Number – 24 hours: 519-000-0000
<b>8</b>	<b>Stability and Reactivity</b>	
<b>Chemical Stability:</b>  <b>Hazardous Polymerization:</b>  <b>Incompatibility:</b>  <b>Hazardous Decomposition Products:</b>	Stable  Will not occur  Avoid contact with strong acids, alkalis, and strong oxidants, nitric acid, acetaldehyde, hydrogen peroxide, chlorinated compounds.  Thermal decomposition may produce toxic smoke, CO and CO <sub>2</sub> .	
<b>7</b>	<b>Toxicological Information</b>	
<b>Acute Oral LD<sub>50</sub>:</b> <b>Acute Dermal LD<sub>50</sub>:</b> <b>Inhalation LC<sub>50</sub>:</b> <b>Dermal Irritation:</b> <b>Dermal Sensitization:</b> <b>Carcinogenicity:</b>  <b>Reproductive toxicity:</b>  <b>Teratogenicity:</b>	756 mg formulated product/kg body weight (rats) 1480 mg formulated product/kg body weight (rats) >3.63 mg/L air (4 hour) (rats) mild irritant (rabbits) Dermal sensitization, Guinea pig -not a sensitizer Monochlor was found not to be carcinogenic in studies with rats and mice.  Monochlor is not developmentally toxic, and does not affect reproductive performance.  Monochlor was not teratogenic in a study with rats.	
<b>Ecological Information</b>		
<b>Aquatic Invertebrates:</b> <b>Warmwater Fish:</b>  <b>Terrestrial Invertebrates:</b>	48-hr EC <sub>50</sub> Daphnia magna: 24-37 mg/L; slightly toxic 96-hr LC <sub>50</sub> Bluegill sunfish: 5.8-14 mg/L; slightly to moderately toxic  48-hr LD <sub>50</sub> Honeybee: >0.1 mg/bee; practically nontoxic	
The results of degradation and bioconcentration studies with this material indicate that the active ingredient is rapidly adsorbed to soil, readily biodegrades in soil and water, and does not bioaccumulate.		
<b>Disposal Considerations</b>		
<b>Waste Disposal:</b> Treatment, storage, transportation, and disposal must be in accordance with applicable federal, provincial, and local regulations. Do not flush to surface water or sanitary sewer system. Triple rinse the container. Offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill in accordance with provincial and local regulations. Do not re-use empty containers.		
<b>Transport Information</b>		
TDG Classification -Road/Rail: not regulated		

Figure: 3-11: Sample MSDS, cont'd.

<b>MATERIAL SAFETY DATA SHEET</b>	<b>THE PESTICIDE COMPANY</b> Nowhere St. Some City, Ont X1X 1X1 Emergency Number – 24 hours: 519-000-0000
<b>Regulatory Information</b>	
Regulated under the <b>Pest Control Products Act</b> . WHMIS classification: Exempt	
This MSDS has been prepared in accordance with WHMIS requirements.	
<b>Other Information</b>	
The above information is intended to describe our product in respect to safety and handling requirements only. We have attempted to be complete and correct; however, liability for any damage or injury is hereby declined since conditions of use and utilization of the product are beyond our control. Observance of all legal requirements is the responsibility of the user.	

**Figure: 3-11: Sample MSDS, cont'd.**

**Material Safety Data Sheets can be obtained from:**

- Pesticide manufacturers or suppliers
- Canadian Centre for Occupational Health and Safety at 1-800-263-8466 or [www.ccohs.ca](http://www.ccohs.ca)
- North American Compendiums Ltd., P.O. Box 39, Hensall, Ontario N0M 1X0 1-800-350-0627 or fax (519) 263-2936
- Agrichemical Warehousing Standards Association (AWSA) at [www.awsacanada.com](http://www.awsacanada.com)
- CropLife Canada at [www.croplife.ca](http://www.croplife.ca)



### **In Review**

Material Safety Data Sheets (MSDSs) are an additional source of information on a pesticide. MSDS information can help pesticide handlers make environmentally sound decisions on emergency response and safe handling practices. MSDSs detail hazards, precautions, and emergency response information. Information is based on the WHMIS concept that individuals have the right to know the hazards of products they are handling.

Copies of the MSDS for most Commercial and Restrictive class pesticides can be obtained from licensed/certified vendors. Pesticide applicators should be familiar with the MSDS for each product they are using or storing. This ensures that they are handling them in as safe a manner as possible.

## Summary

It is important for applicators to have the information needed to make informed decisions on pesticide purchase, storage, handling, application, and disposal. This ensures health and environmental safety. The label on a pesticide container is a legal document and is the most important source of this information. Labels must be legible and present on each container when a pesticide is offered for sale. All legal product uses are stated on the label. If an application is made for a use not listed on the label, then it is an illegal use of the pesticide. Sometimes a new use will be registered, but will not appear on old labels. When in doubt, or for the most current label, contact Pest Management Information Services (1-800-267-6315) or your provincial pesticide regulatory agency.

The label is divided into a principal display panel and a secondary display panel. The principal display panel gives information on:

- The pesticide product name
- Name(s) and amount(s) of active ingredient(s)
- The Pest Control Products Act registration number
- Hazards to humans, indicated by using precautionary shapes, symbols and words

The secondary display panel has information that allows the applicator to mix and apply the pesticide for the best control of target pests. It identifies special precautions for safe application. The secondary display panel is the best source of information on symptoms of poisoning and first aid guidelines. Applicators need to understand this information to safely and effectively apply pesticides.

The label should be read before buying a pesticide. This ensures that the right pesticide is being chosen. The label should also be read again before mixing and applying in order to find:

- Mixing rates
- Guidelines on personal protective equipment
- First aid directions

The label should also be read before storing, transporting or disposing of unused pesticide.

Material Safety Data Sheets (MSDSs) provide additional product information.

## Self-test Questions

### Quiz # 3-3: Principal Display Panel

*Answers are located in Appendix A of this manual.*

1. Match the pictogram symbol to the precaution.

1)



A) The product is corrosive

2)



B) The product is explosive

3)



C) The product is a poison

4)



D) The product is flammable

2. Describe the warning shape or symbol for an **extreme hazard**.

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3. The pesticide label is a legal document. **True or False?**

4. It is a violation under the *Pest Control Products Act* to use a pesticide in any other way than that stated on the label. **True or False?**

5. List four (4) classes under which a pesticide can be registered.

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6. Pesticides that display the term “Agricultural” on their principal display panel are classed as Restricted Class pesticides. **True or False?**

7. The active ingredient is the part of the pesticide that controls the pest. **True or False?**

8. List two (3) ways in which concentration of a pesticide’s active ingredient may be stated on the product label.

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9. The P.C.P. Act Registration Number shows that the product is registered by Health Canada for sale and use in Canada. **True or False?**

10. It is legal to sell and use a pesticide in Canada if it is labeled with a U.S. Environmental Protection Agency (E.P.A.) number. **True or False?**

## Quiz # 3-4: Secondary Display Panel

*Answers are located in Appendix A of this manual.*

1. The maximum number of applications given in the Number of Applications Statement on a pesticide product's secondary display panel may be exceeded. **True or False?**
2. A buffer zone can be given on a pesticide label or stated in provincial laws. The least strict of these must be followed. **True or False?**
3. What is the most important product information that should be given to medical personnel if pesticide poisoning is suspected?

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## Quiz # 3-5: MSDSs

*Answers are located in Appendix A of this manual.*

1. What does MSDS stand for?

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2. List any 5 Sections on a MSDS.

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