

WORKING SAFELY WITH OPs

(ORGANOPHOSPHATE INSECTICIDES)



WORK SAFE BC

WORKING TO MAKE A DIFFERENCE
worksafebc.com

About WorkSafeBC

WorkSafeBC (the Workers' Compensation Board) is an independent provincial statutory agency governed by a Board of Directors. It is funded by insurance premiums paid by registered employers and by investment returns. In administering the *Workers Compensation Act*, WorkSafeBC remains separate and distinct from government; however, it is accountable to the public through government in its role of protecting and maintaining the overall well-being of the workers' compensation system.

WorkSafeBC was born out of a compromise between B.C.'s workers and employers in 1917 where workers gave up the right to sue their employers or fellow workers for injuries on the job in return for a no-fault insurance program fully paid for by employers. WorkSafeBC is committed to a safe and healthy workplace, and to providing return-to-work rehabilitation and legislated compensation benefits to workers injured as a result of their employment.

WorkSafeBC Prevention Information Line

The WorkSafeBC Prevention Information Line can answer your questions about workplace health and safety, worker and employer responsibilities, and reporting a workplace accident or incident. The Prevention Information Line accepts anonymous calls.

Phone 604 276-3100 in the Lower Mainland, or call 1 888 621-7233 (621-SAFE) toll-free in Canada.

To report after-hours and weekend accidents and emergencies, call 604 273-7711 in the Lower Mainland, or call 1 866 922-4357 (WCB-HELP) toll-free in British Columbia.

OPPORTUNITIES AT worksafebc.com/careers



WORKING SAFELY WITH OPs

(ORGANOPHOSPHATE INSECTICIDES)



WORKING TO MAKE A DIFFERENCE
worksafebc.com

WorkSafeBC publications

Many publications are available on the WorkSafeBC website. The Occupational Health and Safety Regulation and associated policies and guidelines, as well as excerpts and summaries of the *Workers Compensation Act*, are also available on the website: WorkSafeBC.com.

Some publications are also available for purchase in print:

Phone: 604 232-9704
Toll-free phone: 1 866 319-9704
Fax: 604 232-9703
Toll-free fax: 1 888 232-9714

Online ordering: WorkSafeBC.com and click on Publications; follow the links for ordering.

©1996, 2012 Workers' Compensation Board of British Columbia. All rights reserved. The Workers' Compensation Board of B.C. encourages the copying, reproduction, and distribution of this document to promote health and safety in the workplace, provided that the Workers' Compensation Board of B.C. is acknowledged. However, no part of this publication may be copied, reproduced, or distributed for profit or other commercial enterprise, nor may any part be incorporated into any other publication, without written permission of the Workers' Compensation Board of B.C.

2012 edition

Canadian Cataloguing in Publication Data

Main entry under title:

Working safely with OPs (Organo-phosphate insecticides)

ISBN 0-7726-2959-5

1. Cholinesterase-inhibiting insecticides - Safety measures.
2. Cholinesterase-inhibiting insecticides - Health aspects.
3. Organophosphorous compounds - Safety measures. I. Workers' Compensation Board of British Columbia.

SB952.5.W67 1996

363.17'92

C96-960234-0

Contents

Introduction	1
Where OPs are used	2
How OPs affect health	3
Signs and symptoms of OP poisoning	3
How OPs enter the body	4
Through the skin	4
Through the lungs.....	4
By swallowing	4
How to find information on hazards	5
Personal protective equipment	8
Personal protective equipment DOs and DON'Ts	11
What employers and supervisors must do	16
What workers must do	19
How to dispose of empty OP containers and unwanted pesticides	20
Emergency medical care and first aid	21
First aid procedure for OP exposure.....	22
Health monitoring programs	23
Cholinesterase tests	24
Worker exposure cards.....	25
How to obtain cholinesterase monitoring.....	25
For more information	27
WorkSafeBC offices	28

Introduction

Insecticides are a type of pesticide used to kill or control insects. When *organophosphate insecticides* – commonly called *OPs* – enter the human body, an enzyme called *cholinesterase* can be prevented from controlling normal nerve and muscle function. OPs have a similar effect on insects.

This booklet explains what employers, supervisors, and workers must do to work safely with OPs. It contains information on:

- How exposure to OPs affects health
- Signs and symptoms of OP poisoning
- How OPs enter the body
- How to find information on the hazards of OPs
- Personal protective equipment
- First aid treatment and emergency medical care for workers poisoned by OPs
- Health protection programs and cholinesterase tests

The general information in this booklet on labelling, personal protective equipment, and the duties of employers, supervisors, and workers also applies to other types of insecticides.

Where OPs are used

OPs are used:

- On farms and in orchards to control insects that damage crops
- On farms and ranches to control pests that infest animals and farm buildings
- In veterinary products used to control pests that infest livestock and pets
- In nurseries to control pests that attack greenhouse crops, and bedding and ornamental plants
- In the forest industry to protect trees and tree seedlings
- In warehouses, retail stores, schools, office towers, and other buildings to control termites, carpenter ants, and other pests

Some of the most poisonous pesticides used in British Columbia are OPs. Malathion and diazinon are examples. Even the least toxic OPs can poison you if you don't use them safely.

OPs used in British Columbia include:

- Acephate
- Azinphos-methyl
- Chlorpyrifos
- Diazinon
- Dichlorvos
- Dimethoate
- Malathion
- Methamidophos
- Naled
- Phosalone
- Phosmet
- Terbufos
- Tetrachlorvinphos
- Trichlorfon

Most OPs—including malathion—have strong odours that smell like garlic.

How OPs affect health

Exposure to OPs can result in serious health effects. In the body, OPs combine with cholinesterase and prevent it from breaking down *acetylcholine*—a chemical that helps transmit impulses between the gaps of nerve ends and from nerves to muscles. When cholinesterase is blocked, the nerves continue to send messages to muscles.

The effects of repeated exposure to OPs add up because the body replaces cholinesterase slowly. Even repeated absorption of small doses through the skin—over a few hours, a day, or many days—can affect cholinesterase levels. This type of small dose can occur when contaminated clothing isn't handled properly.

Signs and symptoms of OP poisoning

Workers might not feel all the effects of OP poisoning immediately. There may be a delay of hours, days, or months if exposure continues. If you have been exposed to OPs, pay attention to mild symptoms as they could be mistaken for the flu.

Symptoms of OP poisoning may include:

- Exhaustion, weakness, and confusion
- Dizziness
- Blurred and dark vision (everything looks grey)
- Cold sweating, salivating, watery eyes, and stuffy or runny nose
- Twitching eyelids and tongue
- Vomiting, cramp-like abdominal pain, and diarrhea
- Chest tightness and difficulty breathing

How OPs enter the body



Through the skin

The skin is the most likely way for OPs to enter the body. Exposure through the skin often occurs with spills or splashes during mixing or spraying. OPs can be absorbed not only through skin with cuts or scrapes, but also through intact skin.

Eyes and genital areas absorb pesticides more easily than hands and forearms. That's why eye protection, protective clothing, and good hygiene are important. Good hygiene includes washing your hands:

- After handling or using OPs
- Before eating, drinking, smoking, or using the toilet
- Before going home



Through the lungs

The risk of inhaling OPs is higher if they tend to remain in the air after application. The main concern is inhalation of vapours, fogs, or fine dusts.

The risk of inhaling OPs may be very high in greenhouses, mushroom barns, warehouses, or other enclosed areas where ventilation is poor.



By swallowing

The most severe poisonings often result when OPs are swallowed. The stomach and intestines absorb pesticides easily. You could ingest OPs if you eat, drink, or smoke in a contaminated area, or before washing your hands. Someone died by accidentally swallowing OPs when a container used for mixing OPs was mistaken for a container used for drinking.

How to find information on hazards

Safety procedures and personal protective equipment must be matched to the hazard level and routes of absorption. To do this, employers and workers need information to be able to assess the risks of working with OPs.











Employers can obtain material safety data sheets (MSDSs) for OP products from most suppliers. The MSDS explains the chemical and physical properties of the product, health hazards, and safety procedures. You should know where MSDSs are kept at your worksite.

Pesticides must be labelled with directions for use and information on ingredients, hazards, safety precautions, and first aid. OPs (and other pesticides) must be registered by the Pest Management Regulatory Agency of Health Canada before they can be sold or used in Canada. The labels must contain the *Pest Control Products Act* (PCP) registration number.

Usually pesticides are sold as formulations—a mixture of the *active ingredients* (the organophosphate in the case of OPs) and other materials called *carriers* or *formulants*. Carriers make the product easier to store, transport, dilute, or apply. Examples of carriers include fine clay, talc, volcanic ashes, water, oils, solvents, and air and gas propellants.

The information on the OP label takes into account the hazards of the active ingredient (organophosphate) and the carrier. The degree of hazard is indicated by the shape of the symbol on the label as shown in the table on the next page.

Warning symbols used on OP labels

	Danger	Warning	Caution
Poison			
Flammable			
Explosive			
Corrosive			

The shape of the symbol is determined by:

- The acute oral and dermal LD₅₀s of the formulated product. (The acute LD₅₀ is the amount given in one dose by mouth or applied to the skin that would cause the death of 50 percent of a group of test animals. Acute lethal dose classifications are listed in the table on the next page.)
- Whether the product causes long-term (chronic) health effects.
- Whether a respirator is required when using the product.
- The health effects on the eyes.
- The level of petroleum distillates contained in the product.

Lethal dose classifications

Classification	Oral LD₅₀ (by mouth)	Dermal LD₅₀ (applied to the skin)
Very toxic	0–50 mg/kg*	0–200 mg/kg
Moderately toxic	Over 50–500 mg/kg	Over 200–1,000 mg/kg
Slightly toxic	Over 500 mg/kg	Over 1,000 mg/kg

* milligrams of a substance per kilogram of body weight of the test animal

One of four pictographs inside the symbol on the label indicates whether the product is poisonous, flammable, explosive, or corrosive. (Corrosive materials can burn or destroy tissue.) Flammable, explosive, or corrosive hazards are usually due to the carriers in the formulation.

Always read and make sure you understand the label before using any OP. The label should be kept in good condition so that it's available when needed.

Personal protective equipment

You must wear personal protective equipment to use OPs safely. What you need depends on how toxic the OP is, the type of formulation (solid, liquid, or gas), and the risk of exposure. For example:

- Mixers and loaders often work with concentrated OPs. Such workers need goggles, gloves, respirators, and protective clothing to guard against splashes, spills, and vapours.
- Flaggers involved in aerial applications can be exposed to spray drift and are expected to wear full-body protective spray suits.

Protective clothing (including gloves) is made from many materials including natural rubber, neoprene, nitrile rubber, polyethylene, polyvinyl chloride, and polyvinyl alcohol. No one material provides protection against all types of OPs. Check the label for the type of protective clothing recommended for use with the product. If the label doesn't tell you what kind of glove or suit to use, check the MSDS, ask your supervisor, or contact the supplier.

How often you need to replace your gloves depends on the type of gloves, their thickness, how well they are cared for, and how much they are used. Check protective clothing regularly for holes and worn spots. Don't use a glove or suit with holes.

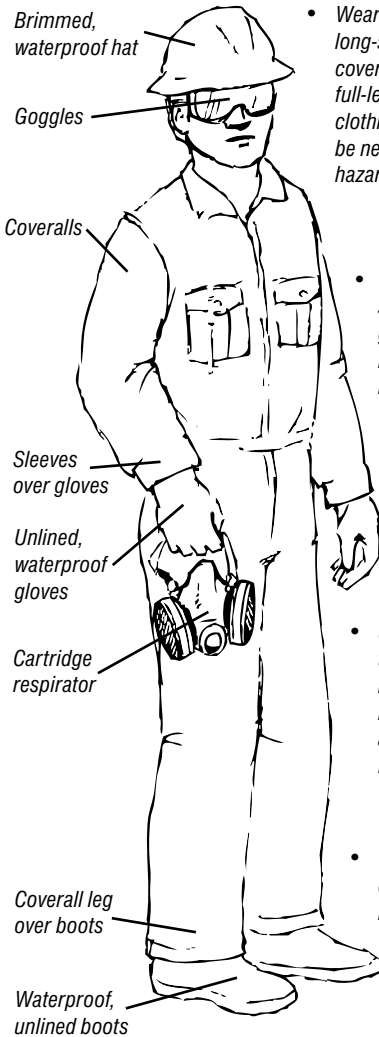
Wear 100-percent cotton coveralls and other clothing unless you wear a rain or spray suit over your clothing. (Rain or spray suits worn during pesticide applications should be waterproof, tear-resistant, and resistant to the solvent used in the OP.) Pesticides pass through polyester—cotton absorbs them. Check the labels on clothing to be sure that it's 100-percent cotton, not a cotton-polyester blend.

Even when you apply a slightly toxic OP, you should at least wear a long-sleeved shirt, long-legged trousers, socks, waterproof boots, and gloves.

The diagram on the following page shows the minimum personal protective equipment and protective clothing needed when applying OP sprays.

Remember, personal protective equipment has limitations. To ensure your protection, use safe work procedures and follow the personal protective equipment dos and don'ts on pages 11-15.

Minimum personal protective equipment for applying OP sprays



- *Wear full-length cotton pants and long-sleeved shirts. Wear cotton coveralls with long sleeves and full-length pants overtop of your clothing. A spray suit and hood may be necessary when the spray hazard is high.*

- *Wear your coverall or spray suit sleeves outside your gloves to stop OPs from running down your sleeves into your gloves. If you have to work with your arms raised, secure the garment sleeve to the glove—for example, use an elastic band.*

- *Use a cartridge respirator if the label says to avoid breathing vapours or spray mists. The cartridge should be a combination organic vapour/P100 type.*

- *Wear your pant legs or coveralls over the tops of your boots to prevent spills and splashes from running into the boots.*

Personal protective equipment DOs and DON'Ts



Coveralls and clothing

- Wear your pant legs or coveralls over the tops of your boots to prevent spills and splashes from running into the boots.
- Remove your coveralls immediately if they become wet through.
- Remove your coveralls as soon as you have finished working with OPs for the day. Wear gloves to handle soiled clothing. After you have removed your soiled clothing, shower and wash completely with soap and water, including your hair and fingernails. Put on a complete change of underwear and clean outer clothing.
- Store contaminated personal protective equipment where others won't come into contact with it until it has been cleaned.
- Wash coveralls and protective clothing separately from other laundry and after each day's use. Wash in hot water (at least 60° C). Use a strong washing detergent. Wash heavily contaminated clothing twice.
- Wash your hat, goggles, face shield, and boots in soap and water after each use.
- Store your clean protective clothing in a separate area from the pesticide storage area.
- *Don't keep your personal and clean work clothing with contaminated work clothing.*
- *Don't wear torn, frayed, or contaminated coveralls.*
- *Don't wash or reuse disposable coveralls.*



Boots

- Wear waterproof, knee-high, unlined boots when you mix, load, or spray OPs.
- Wash the outside of your boots after each use.
- *Don't wear leather or fabric boots and shoes because they will absorb the OP and can't be cleaned effectively.*



Gloves

- Check your gloves for leaks before use.
- Wear the type of glove recommended on the OP label. If the label doesn't tell you what type to use, check the MSDS, ask your supervisor, or contact the supplier.
- Wash your gloves before removing them.
- Replace your gloves when needed. Check them regularly for holes and worn spots.
- Wear gloves that extend up the forearm when you mix OPs.
- *Don't wear a glove with holes or worn spots that could leak.*
- *Don't handle OPs without gloves.*
- *Don't use leather, cloth, cloth-lined, or canvas gloves with liquid formulations because your hands could absorb the OPs more quickly if the gloves become soaked.*



Headgear

- Where OPs might splash or sprays may drift at head level, wear waterproof headgear such as a rubber or plastic rain hat or a wide-brim safety helmet.
- If spray might drift onto the back of your neck, wear a neck cape that attaches to the back of some helmets.
- When spray drift is severe, wear a hood that covers your head, neck, and upper shoulders.
- Wash and dry your headgear after each use.
- *Don't wear baseball caps, felt, straw, or leather hats, or helmets with cloth inner bands.*



Spray suits

- If your cotton coveralls could be splashed or wetted through, wear a spray suit that is waterproof, tear-resistant, and resistant to the solvent used in the OP. Refer to the OP label or MSDS, or ask your supervisor what type to use.
- Follow the manufacturer's instructions on the care of spray suits.
- *Don't wear your rain or spray suit outside work—wear it during pesticide applications only.*



Aprons

- Wear a liquid-proof apron when pouring or handling concentrated OPs to protect you from spills and splashes. Make sure the apron covers your front from your chest to your boots.



Goggles and face shields

- Wear chemical splash goggles if there is a chance of getting dust, powder, or spray in your eyes.
- Wear clear plastic visors (face shields) that cover your face when you are pouring, mixing, and loading liquid concentrate OPs that may splash from one direction.
- Wash goggles and face shields with soap and warm water after each use.
- *Don't use goggles that are only meant to protect you from flying objects—they may have ventilation holes that OPs can flow through.*
- *Don't use goggles with a headband made of foam or other materials that absorb OPs.*
- *Don't use a face shield when applying spray mists. Face shields only protect your eyes and face from splashes from one direction.*



Respirators

- Wear a respirator if any of the following apply:
 - You could be exposed to harmful levels of OP in the air
 - The OP label says to wear one
 - The OP label says to avoid inhaling dust, vapour, or spray mist
 - There is a Danger Poison symbol on the OP label
 - You are applying OPs in an enclosed space
- Wear the right respirator. Ask your supervisor, the supplier, or a safety specialist if you don't know what type you need. Combination organic vapour/P100 cartridges are needed for most OPs. These cartridges are available from most safety equipment suppliers.
- Use a respirator that is NIOSH-approved or meets another standard acceptable to WorkSafeBC.
- Respirators must be properly fit tested before first use and at least annually thereafter. For more information on fit testing, refer to the WorkSafeBC publication *Breathe Safer*.
- Use your respirator properly.
 - Check that the intake and exhaust valves open and close properly.
 - Do a respirator seal check to make sure there aren't any air leaks in the mask's seal with the face.
 - Ask your supervisor, supplier, or a safety specialist to show you how to do a seal check if you don't know what to do.
 - Change the cartridges when breathing becomes difficult. As a rough estimate, expect to change your cartridge after eight hours of use in moderate conditions.
 - Date cartridges when you first open the package.
 - Use cartridges within the manufacturer's recommended cartridge life span.

- Maintain and inspect your respirator routinely according to the manufacturer's instructions.
- Clean your respirator after each use. Wash the facepiece with soap and warm water. Rinse thoroughly to remove all traces of soap. Dry the facepiece with a clean cloth.
- Store your cartridges or the entire respirator in a tightly closed plastic bag. Otherwise, the life expectancy of the cartridges will be reduced. Put the bag in a clean, dry location.
- *Don't assume that an enclosed tractor cab fitted with an air-purifying device will protect you from OP vapours. You may have to wear a respirator. Check the manufacturer's instructions to see if the air-purifying device is NIOSH-approved or meets another standard acceptable to WorkSafeBC.*
- *Don't keep your respirator in a pesticide shed or other pesticide storage area.*
- *Don't use any cartridges of unknown age.*

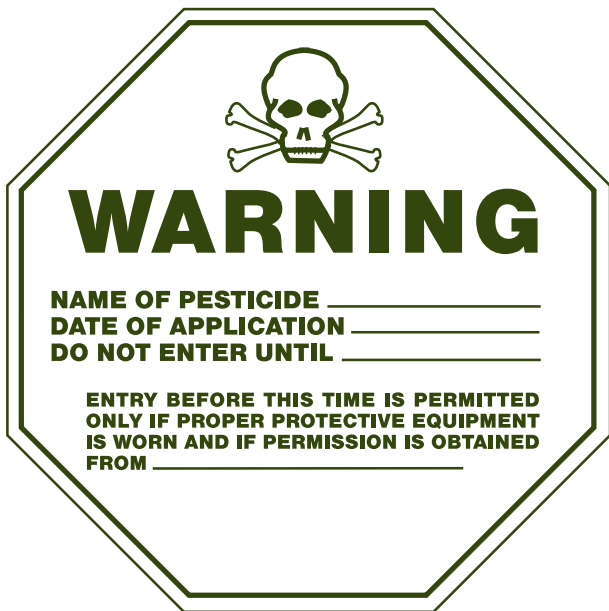
What employers and supervisors must do

- Inform workers about the OPs used at work.
- Explain their harmful effects and the precautions workers must take to work safely.
- Ensure that the personal protective equipment necessary to protect workers mixing, loading, or applying OPs is available and is used.
- Make sure that workers use only properly registered and labelled OPs.
- Transport and store OPs in a safe manner.
- Supply workers with the equipment they need to mix, load, or apply OPs safely. Train them how to use the equipment properly.
- Make sure equipment used to mix, load, or apply OPs is in safe operating condition. Maintain such equipment according to the manufacturer's instructions.
- Provide enough light so that workers are able to read labels when mixing and loading OPs.
- Ensure that workers who mix, load, or apply moderately or very toxic OPs for use in fields:
 - Are age 16 or older
 - Have a valid applicator certificateWorkers who clean or maintain equipment used to apply OPs must also meet these requirements.
- Plan for first aid and emergency care in advance.
- Immediately notify WorkSafeBC of any accident involving an acute exposure to OPs that required treatment by a physician.
- Make sure that there is a way of checking the well-being of workers mixing, loading, or applying very toxic OPs.
- Make sure a second worker wearing the appropriate equipment is able to rescue a worker using moderately or very toxic OPs in an enclosed space such as a mushroom barn.

- Provide washing facilities and eyewash equipment at the mixing or loading site and near fields where OPs are applied. If workers live on the premises, provide them with facilities for showering and for washing their clothes.
- Keep the following records of OP applications:
 - Type of crop treated
 - Number of acres or hectares treated
 - OP used
 - Rate of application
 - Location of the treated crop
 - Date and time the application was completed
 - Date that workers were allowed to enter the area
- Post warning signs at entrances to fields before applying OPs. Secure entrances to greenhouses and other enclosed spaces to prevent unauthorized persons from entering. In the case of moderately and very toxic OPs, the warning signs must include:
 - A skull and crossbones symbol
 - The word WARNING in a language that can be readily understood by the workers
 - The name of the OP and the date of application
 - The expiry date of the re-entry interval
 - Instructions to obtain permission to enter before the expiry date of the re-entry interval
- See the diagram on the next page for a sample warning sign for moderately and very toxic OPs.
- Don't allow workers to enter an area where an OP has been used until it's safe. Re-entry intervals are:
 - 24 hours for a slightly toxic OP
 - 48 hours for a moderately or very toxic OP
 - The sum of the 48-hour intervals for each of the moderately and very toxic OPs used in a mixture
 - The interval on the OP label if it's longer than the intervals listed above

- Make sure a worker entering a field or building before the re-entry interval has expired wears the proper personal protective equipment. If the required time interval hasn't expired, an employer or supervisor must authorize the re-entry.

Sample warning sign



What workers must do

- Follow the safety precautions on the OP label.
- Don't use OPs that aren't clearly labelled.
- Don't put OPs in unmarked containers. Someone might drink from an unmarked container by mistake.
- Store OPs in their original containers or in special applicator containers in locked storage rooms.
- Triple rinse and return empty OP containers to a pesticide container collection site. (See next page.)
- Wear personal protective equipment. Ask your supervisor, check the OP label, or refer to the MSDS to find out what kind to use.
- Always wash your face and hands after handling OPs, especially before eating, drinking, smoking, or using the toilet, and before going home.
- Wash your hat, goggles, face shield, and boots in soap and water when you are finished working with them.
- Wash your work clothing separately from other washing.
- Don't enter a field or building until the re-entry time posted on the warning sign has expired.
- Get first aid for every injury or illness.

How to dispose of empty OP containers and unwanted pesticides

The B.C. Ministry of Agriculture maintains a web page focused on collection of empty pesticide containers and disposal of unwanted agricultural pesticides.

http://www.agf.gov.bc.ca/pesticides/d_9.htm

The CropLife Canada website lists empty pesticide container collection sites in B.C.

http://www.croplife.ca/web/english/stewardship/empty_container_view.cfm?province=BC

The CleanFARMS website also lists empty pesticide container collection sites. In addition, the organization runs an obsolete pesticide collection program.

<http://www.cleanfarms.ca>

Emergency medical care and first aid

OP poisonings can be life threatening. If you are an employer, you must ensure that a worker who is suspected of OP poisoning is taken to a health care facility without delay. To fill this responsibility, you must plan for such emergencies.

- Provide first aid attendants, equipment, supplies, and facilities as required by the Occupational Health and Safety Regulation. This includes providing washing facilities and eyewash equipment that are readily accessible to field workers, and at mixing and loading sites.
- Make sure that every worker is aware of the location of first aid for the workplace and how to call the first aid attendant.
- Post signs at the worksite stating the location of first aid and how to call for first aid. The signs must be easy to locate and understand so that workers know how to get first aid and emergency medical care.
- Post the address and phone number of the nearest hospital emergency department on the vehicle used for applying OPs or where field workers can easily see the information.
- Ensure that the phone numbers of the provincial Poison Control Centre are at hand. These are:
 - 1 800 567-8911 (toll-free in B.C.)
 - 604 682-5050 (Lower Mainland)
- Tell the closest health care facility that OPs are used on your premises to ensure that the facility is ready for emergencies involving OPs when necessary.
- Immediately notify WorkSafeBC of any accident involving an acute exposure to OPs that required treatment. Call:
 - 604 276-3100 in the Lower Mainland
 - 1 888 621-SAFE (7233) toll-free in Canada
 - 1 866 WCB-HELP (922-4357) toll-free after hours



First aid procedure for OP exposure

First aid attendants must be able to recognize the signs and symptoms of OP poisoning and know how to respond to suspected poisonings.

Employers should ensure that a procedure is developed for OP emergencies. Make sure your procedure includes these steps:

- Remove the worker from exposure. Ensure that there is no danger to yourself or the worker.
- Begin first aid as required. Protect yourself and others from contamination when handling or transporting the worker.
- Transport the worker to medical aid as soon as possible.

Be prepared to continue first aid while waiting for transport and en route.

- Identify the OP and the *Pest Control Products Act* registration number if possible. Write down the product name and the PCP registration number from the label.
- Take or send a copy of the MSDS to the hospital.
- Call the local or provincial Poison Control Centre if you need further advice on treatment.

Health monitoring programs

Health monitoring programs detect early signs and symptoms of occupational disease and adverse health effects in workers exposed to harmful substances. A health monitoring program should be considered when workers are exposed to OPs on a regular basis. If necessary, WorkSafeBC can require certain employers to set up a health monitoring program to monitor exposure to pesticides such as OPs.

A health monitoring program for workers regularly exposed to OPs should include:

- Training and information on routes of absorption and safe methods of use
- Information on the early signs and symptoms of OP poisoning
- Pesticide exposure histories
- Pre-exposure (baseline) measurements of workers' cholinesterase levels
- Regular, periodic blood samples of workers exposed repeatedly to OPs
- Record keeping and a scheduling system that ensures examinations aren't missed and results are evaluated quickly

Cholinesterase tests

A blood cholinesterase test is used to monitor the absorption of OPs. The test measures the change in cholinesterase in the blood. The amount decreases as the exposure to OPs increases.

A baseline (non-exposure) cholinesterase level is needed because the normal level of cholinesterase varies greatly from person to person. Some people inherit low levels of cholinesterase. The blood sample should be taken when the worker hasn't been exposed to OPs for 60 days.

It can be difficult to get an accurate baseline level. Certain drugs and medical conditions can also lower cholinesterase levels. It's important to obtain a history of pesticide exposure when obtaining the baseline cholinesterase level. Many household garden products and products used to control ticks, fleas, and cockroaches contain OPs or carbamates (another type of pesticide). Pet flea collars are an example. Some carbamates also lower cholinesterase levels.

Periodic blood samples are taken during the period of high exposure. The frequency of samples depends on factors such as the hours of exposure, the results of previous tests, and signs and symptoms of poisoning.

Levels of cholinesterase are compared with the individual's baseline to see if they have changed significantly. If so, the worker must stop using OPs and the employer must take steps to prevent further exposure from occurring.

Worker exposure cards

Employers who have health monitoring programs for workers exposed to OPs should consider giving each worker a wallet exposure card. The worker's occupation, baseline cholinesterase level, and the name of the lab where the test was performed should be recorded on the card. Whenever the worker sees a doctor or goes to the hospital due to illness or injury, the worker should show the card to the attending medical staff. The information on the card could help the staff identify early signs or symptoms of OP poisoning that can easily be mistaken for flu. It may also be important if the person needs an anesthetic or drug therapy. The sample card on the following page may be photocopied and distributed to workers.

How to obtain cholinesterase monitoring

Call WorkSafeBC at 604 276-3100 or toll-free 1 888 621-SAFE (7233). A WorkSafeBC physician will take a pesticide exposure history and discuss appropriate testing.

Specific test results can't be released to an employer who has set up a health monitoring program without the written, informed consent of the worker. Without consent, the employer can only be given a general description of the test results.

Sample wallet exposure card

Organophosphate Insecticide Exposure Card

Instructions to workers:

Keep this card in your wallet along with your B.C. Care Card. Whenever you go to your doctor or a hospital due to illness, show the card and make sure those attending you know your occupation.

Name	Phone Number
Address	
Occupation	
Baseline Cholinesterase Level	
Lab	Phone Number
In Case of Emergency Notify	Phone Number
Address	
Employer	
Contact	Phone Number
Doctor	Phone Number
Address	

For more information

For more information on OPs or other pesticides:

- See the WorkSafeBC publication *Standard Practices for Pesticide Applicators*.
- Call the WorkSafeBC Prevention Information Line at 604 276-3100 in the Lower Mainland or 1 888 621-SAFE (7233) toll-free in Canada.

If you work in agriculture, you can also contact the independent Farm and Ranch Safety and Health Association (FARSHA) at 604 881-6078.

WorkSafeBC offices

Visit our website at WorkSafeBC.com.

Abbotsford

2774 Trethewey Street V2T 3R1

Phone 604 276-3100

1 800 292-2219

Fax 604 556-2077

Burnaby

450 – 6450 Roberts Street V5G 4E1

Phone 604 276-3100

1 888 621-7233

Fax 604 232-5950

Coquitlam

104 – 3020 Lincoln Avenue V3B 6B4

Phone 604 276-3100

1 888 967-5377

Fax 604 232-1946

Courtenay

801 30th Street V9N 8G6

Phone 250 334-8765

1 800 663-7921

Fax 250 334-8757

Kamloops

321 Battle Street V2C 6P1

Phone 250 371-6003

1 800 663-3935

Fax 250 371-6031

Kelowna

110 – 2045 Enterprise Way V1Y 9T5

Phone 250 717-4313

1 888 922-4466

Fax 250 717-4380

Nanaimo

4980 Wills Road V9T 6C6

Phone 250 751-8040

1 800 663-7382

Fax 250 751-8046

Nelson

524 Kootenay Street V1L 6B4

Phone 250 352-2824

1 800 663-4962

Fax 250 352-1816

North Vancouver

400 – 224 Esplanade Ave. W. V7M 1A4

Phone 604 276-3100

1 888 875-6999

Fax 604 232-1558

Prince George

1066 Vancouver Street V2L 5M4

Phone 250 561-3700

1 800 663-6623

Fax 250 561-3710

Surrey

100 – 5500 152 Street V3S 5J9

Phone 604 276-3100

1 888 621-7233

Fax 604 232-7077

Terrace

4450 Lakelse Avenue V8G 1P2

Phone 250 615-6605

1 800 663-3871

Fax 250 615-6633

Victoria

4514 Chatterton Way V8X 5H2

Phone 250 881-3418

1 800 663-7593

Fax 250 881-3482

Head Office / Richmond

Prevention Information Line:

Phone 604 276-3100

1 888 621-7233 (621-SAFE)

Administration:

6951 Westminster Highway

Phone 604 273-2266

Mailing Address:

PO Box 5350 Stn Terminal

Vancouver BC V6B 5L5

After Hours**Health & Safety Emergency**

604 273-7711

1 866 922-4357 (WCB-HELP)



WORKING TO MAKE A DIFFERENCE
worksafebc.com

