



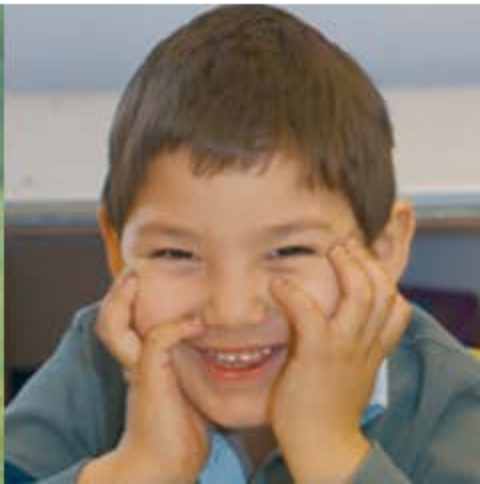
Phosphine Fumigation

David Quesnel

Regional Pesticide Officer

Pesticide Compliance Program

Health Canada, Ontario Region



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Topics for Today

- Health Canada's Role
- Compliance Role
- Phosphine Uses
- Toxicity
- Label Changes and New Requirements
- Fumigation Management Plan
- Incident Reporting
- PMRA Phosphine Programs + Contacts



Health Canada's Role

- Health Canada is the federal department responsible for helping the people of Canada maintain and improve their Health.
- Health Canada's Pest Management Regulatory Agency (PMRA) works to prevent unacceptable risks to people and the environment by regulating products used for the control of pests.
- PMRA applies and enforces the *Pest Control Products Act (PCPA)* and its Regulations



Health Canada's Role

Pest Management Regulatory Agency

- Registration
- Re-evaluation
- Compliance Promotion and Monitoring



Pesticide Registration and Compliance

Compliance:

The *Pesticide Compliance Program (PCP)* of Health Canada is responsible for pesticide compliance in Canada. The PCP fulfills this responsibility by:

- **Investigating** the use, sale, and importation of pesticide products;
- Performing on-site **inspections** of use and storage of pesticide products;
- Conducting **sampling** of pesticides or things pesticides are applied to, within, or around; and
- **Informing** and **enforcing** regulatory requirements.



Pesticide Registration and Compliance

Compliance is an essential component of the regulatory system

Examples of some PCPA prohibitions:

6.(1) - prohibits manufacture, possession, handling, storage, transport, import, distribution and use of **unregistered pest control products.**

6.(5) - prohibits handling, storing, transporting, using or disposing of a pest control product in a manner **inconsistent with the registered product label directions.**

6.(7) – prohibits packaging or advertising a pest control product in a way that is **false, misleading or likely to create an erroneous impression** regarding its character, value, quantity, composition, safety or registration.



Pesticide Registration and Compliance

What we can do:

Inspector powers under the PCPA:

- **Enter and inspect** any premises and conveyances where we believe on reasonable grounds there is a pest control product
- **Open and examine** any container or product, examine records and documents relevant to the administration of the PCPA
- **Sample and conduct** tests or analyses and take measurements
- **Seize and detain** products or things involved in a contravention
- **Stop or shut down** any activity involved in a contravention



Pesticide Registration and Compliance

To ensure compliance



Pesticide Registration and Compliance

How we achieve and maintain compliance:

- Education/Enforcement Letters
- Voluntary (return, re-labelling, recall, forfeiture, disposal)
- Seizures & Detentions
- Administrative Monetary Penalties (AMPs) – *warning or penalty*
- Denial of Entry of product into Canada, Border Lookouts
- Compliance Order
- Court Order
- Prosecution



Pesticide Registration and Compliance

Various Government Responsibilities:

Federal:

- Pesticide Registration and Re-evaluation
- Health, Environment and Value Assessment
- Compliance and Enforcement



Provincial and Territorial

- Transport, sale, use, storage and disposal
- Training, Certification and Licensing of applicators and vendors
- Regulate for further conditions on use

Municipal

- Bylaws for further conditions on use (where authority exists)



Phosphine Fumigants Available in Canada

Aluminum Phosphide	PCP Registration #
Phostoxin	15735, 15736, 16351, 16438, 20252
Gastoxin	17187, 17188, 23842, 23843
Fumitoxin	19226, 19227
Weevil-cide	29455, 30013
Magnesium Phosphide	
Fumi-Strip/Fumi-Cel	26188
Magtoxin	26523, 26524
Phosphine	
Eco2-Fume	27684



Provincial Requirements for Phosphine Fumigation

Requirements to Use Phosphine

- Acquisition of permits for use in some situations
- Inspection and careful preparation of the fumigation site (including posting of specific signs, sealing and locking the structure)
- Securing an area around the structure which is sufficient to prevent any bystander exposure
- Preparation of records of air monitoring which are kept for 2 years
- Adequate presence of licensed exterminators at all times
- Use of adequate respiratory and monitoring equipment



Phosphine Uses

Commodity Fumigation

- Raw Agricultural Commodities (grains, nuts, seeds, etc.)
- Processed Foods (sugar, flour, coffee, animal feed, bagged cereals, dried food etc.)
- Non-food commodities (tobacco, furniture, wood, animal hides, natural fibers, etc.)



Phosphine Uses

Burrowing Rodent Control

- Groundhogs (Woodchucks)
- Ground Squirrels, gophers



Phosphine Uses

Space Fumigation/Structural Fumigation

- Tarped areas
- Mills
- Food-Processing Plants
- Warehouses



Phosphine Uses

- **Application Sites / Methods**
 - Mills, food processing plants, warehouses
 - Vertical bins, silos
 - Tarpaulin soil fumigations
 - In-transit fumigation of shipholds, railcars, containers, trucks, vans, other transport vehicles
 - Rodent burrows



Toxicity of Phosphine

- Phosphine products are RESTRICTED due to high toxicity
- NIOSH IDLH = Immediately Dangerous to Life or Health
 - concentration for phosphine gas is 50 ppm
- Re-evaluation: Label requirements protect workers and bystanders
- Read the Label:
 - Precautions
 - Toxicological Information
 - First Aid



Symptoms of Exposure

- Mild Exposure
 - Malaise (feeling unwell), ringing in ears, fatigue, nausea, pressure in chest
- Moderate Poisoning
 - Weakness, vomiting, pain above stomach, chest pain, diarrhea, breathing difficulty
- Severe Poisoning
 - Dizziness, blue/purple skin colour, unconscious, death
 - Fluid in lungs, effects on major organs, nervous system, circulation

Symptoms of severe poisoning appear within a few hours to several days



Protect yourself and those you work with

- **Inhalation is the #1 concern**
- To protect yourself:
 - Read the label
 - Wear protective equipment
 - Monitor phosphine gas levels



Protect Workers and Bystanders

Respiratory Protection **MUST** be worn during

- Application of fumigant within a structure
- Initiation of aeration
- Testing after aeration, prior to re-entry
- Fixing leaks and spills

AERATE fumigated areas to **0.1 ppm or less before entry**



First Aid

Symptoms of Exposure:

headache, dizziness, nausea, difficult breathing

Protect yourself; Take person to fresh air and emergency care

First aid responders must protect themselves

Wear NIOSH/MSHA approved self-contained breathing apparatus

If inhaled, move person to fresh air. If not breathing, call an ambulance

Do not perform mouth-to-mouth resuscitation



Re-evaluation of Pesticides in Canada

- 2001 – began re-evaluation of 401 active ingredients registered pre-1995
- All current products are re-evaluated every 15 years
- Modern risk assessment approaches
- Exposure risks – Health and Environment
- Results of re-evaluation may mean changes to labels to minimize these risks



Re-evaluation of Phosphine - Canada

- 2004 – **Phosphine proposed acceptable** for continued registration; Mitigation measures same as US Environmental Protection Agency (EPA) (re-entry limit of 0.03 ppm & 150 m buffer zone)
- 2007 – **Interim Mitigation Measures** – Safety requirements for applicators and bystanders
- 2010 – **Update** – Fumigation Management Plan; Exposure limit reduced to 0.1 ppm
- 2013-14 – **Additional risk management** label requirements under development to be communicated to registrants



Label Requirements 2007-2010

To further protect workers and bystanders in the vicinity of treated areas:

Safety Recommendations

- Report theft of product immediately to police
- Inform registrant of any incidents

Directions For Use

- Piling of tablets, pellets, bags or addition of liquid to the product is prohibited to prevent the formation of “gas pockets” reaching the concentration at which phosphine gas explodes.



Label Requirements 2007-2010

Environmental hazards

- DO NOT contaminate water by cleaning of equipment or disposal of wastes. This includes:
 - Irrigation water, drinking water irrigation or drinking water supplies or
 - Aquatic habitats - lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs



Label Requirements 2007-2010

SAFETY in Fumigation of Structures or Enclosures

- Two persons – a certified applicator + a trained person
 - Or -
- Two trained persons + certified applicator with visual contact as supervisor
- Personal protective equipment
- Placard fumigated areas
 - 24 HR Emergency response telephone number



Label Requirements 2007-2010

Fumigation of Railcars, Containers, Trucks, Vans, Transport Vehicles

- Written notification to receiver prior to receipt
- Applicator's Manual must precede or accompany shipment
- Trained person aerates vehicle when received
- Trained person is licensed, aware of requirements, gas measurement and first aid
- Aeration en route is prohibited



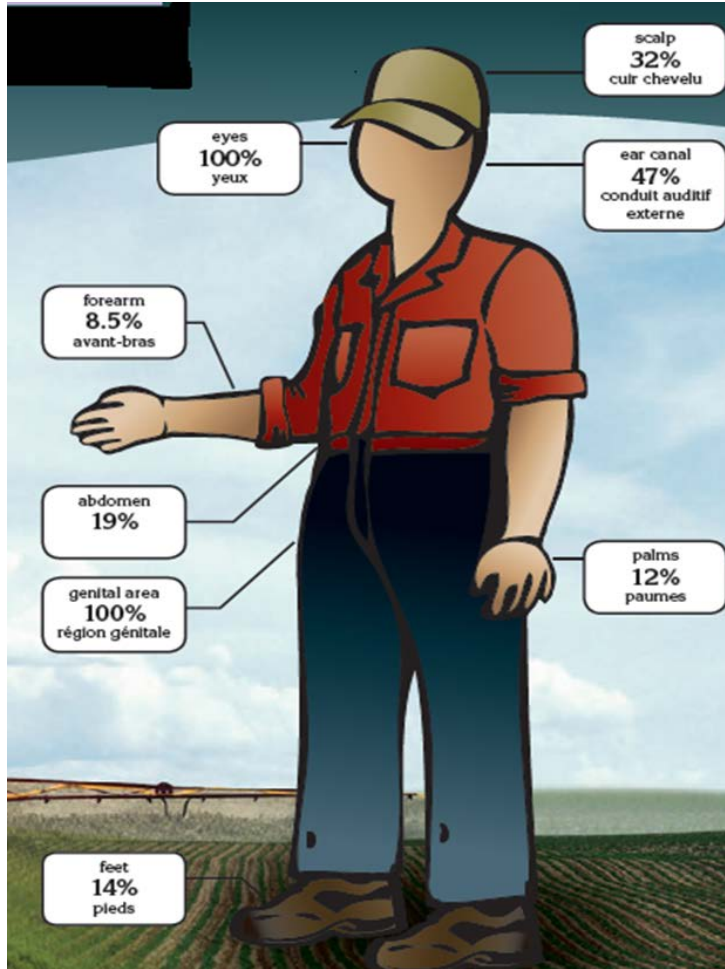
Label Requirements 2007-2010

Requirements for Rodent Burrows

- Wear a National Institute for Occupational Safety and Health (NIOSH) approved respirator during application to rodent burrows.
- Residential use is strictly prohibited.
- Do not use within 500 metres of residential areas



The Importance of Protective Equipment



Most pesticides

- Different parts of your body absorb pesticides at different rates.
- Dermal Absorption is the most common route of exposure when using pesticides
- Follow label directions and protect yourself.
 - Unlined gloves and boots
 - Aprons where directed - groin area readily absorbs splashed pesticides
 - Hats and ear protections where directed
 - 100% of pesticide that comes in contact with your eyes is absorbed

Phosphine: exposure is through inhalation; Wear approved mask



Personal Protective Equipment (PPE)

- Dry gloves of cotton
- Loose fitting long sleeve shirt
- Long pants
- Shoes and socks
- **NIOSH/MSDA approved gas mask**



Label Requirements 2007-2010

Exposure must not exceed 0.1 ppm

At 0.1 ppm, ESCAPE or wear Respiratory Protection

Exposure	Personal Protective Equipment
0.1 – 5.0 ppm	NIOSH/MSHA full-face gas mask Self-contained breathing apparatus with full face mask
5.0 – 50 ppm	NIOSH/MSHA supplied-air respirator with full facepiece operated in a positive pressure mode
Unknown	NIOSH/MSDH self-contained breathing apparatus with full facepiece operated in a positive pressure mode



Label Changes & New Requirements

Past		Present	
Exposure	Threshold	Exposure	Threshold
TWA: Workday	0.3 ppm	New Exposure limit	0.1 ppm
STEL: 15 minutes	Max: 1.0 ppm	New Exposure limit	0.1 ppm
Escape, No entry without respiratory protection	More than 1.0 ppm	New Exposure limit	Over 0.1 ppm

TWA = Time Weighted Average

STEL = Short Term Exposure Limit



Label Requirements 2007-2010

Placards of Fumigated Areas

- Fumigated areas must be placarded
- Substantial placards
- Specific requirements
- 24- hour Emergency response telephone number



Label Requirements 2007-2010

Applicator and Worker Exposure

Phosphine concentration can be higher at the core of the commodity

- Monitor before opening
- Monitoring by a trained/certified worker



Fumigation Management Plan

What is the Fumigation Management Plan?

- Regulatory requirement following the REV2010-03 decision
- Registrant to include a Guidance Document on all labels/Applicator's Manual
- To be completed prior to every fumigation treatment
- To be retained for at least 2 years for verification
- Helps ensure a safe, legal and effective fumigation
- **READ YOUR LABELS**



Fumigation Management Plan

Fumigation Checklist:

- Preliminary planning and inspection of treatment site
 - Commodity, type of structure, dose
 - Find possible leaks.
- Warnings and training of personnel around treatment site
- Monitoring (before, after and every 6hours)



Fumigation Management Plan

- Notifications (local authorities) and Emergency Response Plan
- Sealing procedures and placarding
- Application
- Post-application operations.
 - Ventilation
 - Gas monitoring and leak containment
 - Gas-free and re-entry



What is a Pesticide Incident?

An unintended or unexpected effect resulting from exposure to, or use of, a pesticide.

➤ Effects on:

- Humans
- Domestic animals
- Environment
- Packaging failure

Minimum information required:

- active ingredient or product name
- description of effect

Effects resulting from the misuse of a product **are reportable**.
Incidents do not have to be proven or substantiated.



Why and How Can an Incident be Reported?

Why declare an incident? To allow the PMRA to:

- Continue monitoring the safety of pesticides once they are on the market;
- Identify potential risks to health or the environment
- Take corrective actions in order to mitigate identified risk

How can I declare an incident?

- Download a Voluntary Incident Reporting Form, fill it and send it to www.healthcanada.gc.ca/pesticideincident
- Enquiries relating to pesticide incidents : pmra-incident-arla@hc-sc.gc.ca
- Contact the manufacturer and declare the incident: they are required by law to declare all incidents they are made aware of concerning their products.
- General enquiries : 1-800-267-6315 pmra.infoserv@hc-sc.gc.ca



PMRA Phosphine Programs

This year: Understanding

Next year: Inspection



PMRA Contact Information

PMRA Website

<http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php>

Information Service: 1-800-267-6315

pmra.infoserv@hc-sc.gc.ca

Regional Contact:

David Quesnel

Regional Pesticide Officer, Health Canada

2720 Riverside Dr. Ottawa ON Canada K1A 0K9

david.quesnel@hc-sc.gc.ca

Telephone 613-736-3490 / Cellular 613-220-3594

