

The Pesticide Label

*Key to Pesticide
Safety and
Education*

March/April 1998

Department of Environmental Biochemistry

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Editor's note

In this issue, we present two **recertification topic** articles about reducing your risk of harm from a pesticide you use at home or on the job. **SAFETY, TOXICITY, AND EXPOSURE** (p.6) addresses a basic principle of safety:

$$\text{RISK} = \text{TOXICITY} \times \text{EXPOSURE}$$

More exposure to a pesticide means more risk. So review ways of reducing exposure to family members as well as to yourself by reading **MAINTAINING YOUR PERSONAL PROTECTIVE EQUIPMENT** (p.10).

A **reminder** to check the expiration date of your certification card appears in the article **RECERTIFICATION PROCEDURE** (p.2) . If you plan to be recertified, review the two methods of recertification allowed. For either, we suggest you start the process about three months before your card expires. This “lead time” is important if you cannot do without certification for even a short period and only the *examination method* applies to you. Because the exams have changed significantly over the past five years, using a “last minute” strategy may be stressful if you’re not familiar with the current version. Check the article for details.

Charles Nagamine
Instructor/Coordinator, Pesticide Applicator Training

FOR

Barry Brennan, PhD.
Pesticide Coordinator

Recertification Articles Index

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Regulatory Updates

We listed Special Local Need (SLN) labelings in previous issues of this newsletter. Here is an update.

EXPIRED or EXPIRING SOON

Outdoor grown Anthuriums, Poinsettias, Flowering Ginger, Chrysanthemums, Roses; Talstar T & O Flowable - Insecticide/Miticide (FMC; 279-3105); HI-930002 expires 6/9/98.

Anthurium andraeanum; Dimethoate 400 Systemic Insecticide-Miticide (Platte; 34704-207); HI-930004 expires 5/2/98.

Papaya; Thiolux Dry Flowable Micronized Sulfur (Sandoz Agro; 55947-48); HI-930007 expires 6/14/98.

Macadamia Nuts; Thiolux Dry Flowable Micronized Sulfur (Sandoz Agro; 55947-48); HI-930008 expires 6/14/98.

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Recertification Procedure

A *restricted use* pesticide certification card serves as proof that the Hawaii Department of Agriculture (HDOA) certified the cardholder to buy, use, or supervise the use of restricted use pesticides. The HDOA thus considers him or her to be a *certified applicator*. The applicator may have a card for the *commercial* applicator category or the *private* applicator category, or both. A card is valid for *five years* unless the HDOA suspends or revokes the applicator's certification.

Two recertification methods

The HDOA allows recertification by either taking the *examination* again or earning sufficient *recertification credits*, except that Category 10 applicators may only be reexamined.



When does your certification expire? Date of expiration appears on the wallet-size laminated card issued to you by the Pesticides Branch, Hawaii Department of Agriculture (if you are a certified applicator). Check it so you know when it expires. **No reminder will be sent to you.**

Recertification by examination involves submitting a completed form, paying the \$10 fee, and passing the exam. Because the exams have changed significantly over the past five years, a certified applicator should plan to get a new packet of study materials. Training courses are available too. They can help applicators start preparing for the exam. Training courses jointly sponsored by the HDOA and the Cooperative Extension Service (UH College of Tropical Agriculture and Human Resources) will be announced in issues of this newsletter. An applicator who wants to take the exam should make an appointment with a local office of the HDOA. ADDRESSES & TELEPHONE NUMBERS and FEES are listed below. If the certified applicator cannot do without certification for even a short period, he or she is advised to note the card's expiration date and take the exam about three months before then. By using this strategy, the applicator will still be certified if he or she does not pass and needs to study more before taking the exam again.

Recertification credits may be earned by certified applicators who attend *training events* (described below) or take advantage of *recertification topic articles* printed in this newsletter (described below). To be eligible for recertification by credit, a certified applicator must earn a minimum number of credits during the five-year period of certification:

- Private applicator—17 credits
- Commercial applicator category 7A, 7B, 7C, 7D, or 7E—35 credits
- Commercial applicator category 8 PUBLIC HEALTH PEST CONTROL—Recertification administered by Hawaii Department of Health.
- Commercial applicator category 10 DEMONSTRATION & RESEARCH PEST CONTROL—Recertification only by examination.
- Other Commercial applicator categories—15 credits

An applicator may learn how many credits he or she has earned by contacting the HDOA. No carryover of credits between old and new certification periods is allowed.

Only the certified applicator can start the renewal process for his or her certification. No reminders of expiration dates will be sent. Even if he or she has earned enough credits to be eligible for recertification, the **HDOA will not renew the certification unless it receives an application.** To apply, the applicator should submit the \$10 fee and a completed application for recertification no earlier than 3 months prior to the certification's expiration date. ADDRESSES & TELEPHONE NUMBERS and FEES are listed below. The fee and application may be submitted as late as 30 days after the expiration date. But during this "grace" period, the certified applicator could not buy, use, or supervise the use of restricted use pesticides because the certification would have expired. The grace period extends only the time when an applicator may be recertified by credit. Those who have not been recertified by the end of this grace period may only do so by taking the examination again.



Only the certified applicator can start the renewal process for his or her certification. Even if an applicator has earned enough credits to be eligible for recertification, the HDOA will not renew the certification unless it receives an application.

Training Events

A certified applicator may earn recertification credits by attending seminars and short courses that were approved by the HDOA for credit. One credit is assigned to each 50–60 minutes for most events. But more or less credit may be assigned depending on subjects covered and extent of trainee evaluation. Subject matter also determines which categories of applicators may earn credit. The event sponsor must apply to the HDOA for credit *prior to* the event. The sponsor is responsible for publicizing the event; verifying a trainee's attendance; conducting trainee evaluation (if any was specified in the application for credit assignment); logging credits earned by trainees; and for reporting the logged credits to the HDOA. A representative of the HDOA may be present at the event.

If your card is bar coded and bears a photograph of you, it can be used to track credits you earn for recertification. This type of card allows you to have credits logged at the end of a seminar, short course, or other educational event (if the HDOA had already assigned it credit). If you want such a card, contact the HDOA. See below, ADDRESSES & TELEPHONE NUMBERS . When you apply for the card, you will need to present a recent 1" x 1" photograph of yourself. A card without the bar code and photograph will not be accepted for credit tracking, but you may still use it as proof of certification when you buy a restricted use pesticide.

Recertification topic articles

Each issue of this newsletter will contain one or two recertification topic articles. Their titles will contain the phrase *Recertification Topic*. We produce six issues of this newsletter per year, and each issue lists recertification topic articles in past newsletter issues. The list on page 2, RECERTIFICATION ARTICLES INDEX, is an example.

HDOA staff will prepare written evaluation questions about the recertification topic articles in each issue. Certified applicators are advised to study the articles and make an appointment with the HDOA to give written answers to the questions. ADDRESSES & TELEPHONE NUMBERS are listed below. To earn credit for an issue, an applicator must correctly answer at least 70% of the questions. Only one attempt for each issue will be allowed. The applicator may attempt to answer the questions for more than one newsletter issue per appointment.

Addresses & Telephone Numbers

Kauai

Pesticides Branch
Hawaii Department of Agriculture
4398A Pua Loke Street
Lihue, Hawaii 96766
PHONE 274-3069

Maui, Molokai, Lanai

Pesticides Branch
Hawaii Department of Agriculture
635 Mua Street
Kahului, HI 96732
PHONE 873-3555

Oahu

Pesticides Branch
Hawaii Department of Agriculture
P.O. Box 22159
Honolulu, HI 96823-2159
PHONE 973-9401

Hawaii

Pesticides Branch
Hawaii Department of Agriculture
16 E. Lanikaula Street
Hilo, HI 96720
PHONE 974-4143

(continued on next page)

Fees

- Study materials packet for *Private* applicator category, \$20
- Study materials packet for *Commercial* applicator category (COMMERCIAL CORE material + a set of material for one CATEGORY), \$20
 - * Set of materials for another *Commercial* applicator CATEGORY, \$10
- Pesticide Applicator Training short course (including a study packet for either the *Private* or the *Commercial* applicator category), \$100.
 - * If you already have a current study materials packet, \$80
- Examination for *Private* applicator category, \$10
- Examination for each *Commercial* applicator category, \$10
- Recertification, \$10 per category

The HDOA will be increasing the price of the study materials in the near future. But some organizations may be distributing packets at a lower cost to their members.

* * *

Hydramethylnon– Pineapple Residue Tolerance Established

A time-limited tolerance for residues of **hydramethylnon** in or on **pineapple** was established by EPA on March 4, 1998. This action was in response to EPA's granting of an emergency exemption under section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act authorizing use of the pesticide on pineapple. This regulation established a maximum permissible level for residues of hydramethylnon in this food commodity pursuant to section 408(1)(6) of the Federal Food, Drug, and Cosmetic Act, as amended by the Food Quality Protection Act of 1996. The tolerance will expire and is revoked on January 31, 1999.

[SOURCE: *Federal Register* March 4, 1998, Volume 63, Number 42, Pages 10537–10543.]

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A person's character and their garden both reflect the amount of weeding that was done during the growing season

* * *

Expect Labeling Changes for Total Release Foggers

On February 23, 1998, EPA issued a requirement for specific precautionary labeling of *total release fogger* pesticides. [A *total release fogger* is a pesticide product in a pressurized container designed to automatically release the total contents in one operation, for the purpose of creating a permeating fog within a confined space to deliver the pesticide throughout the space.] This requirement applies to pesticide product registrants, mainly pesticide manufacturers. In earlier studies, EPA found

that foggers, as labeled, presented a risk of unreasonable adverse effects from fires and/or explosions caused by a build up of extremely flammable propellants in rooms treated the pesticides. It concluded that this risk was not adequately addressed in the labeling. To mitigate this risk, EPA is requiring precautionary language that will warn users about the hazard of a concentration of gases that could cause a fire or explosion, and limit the number of foggers that can be released within the dwelling.

Additional Labeling to Appear in the PHYSICAL AND CHEMICAL HAZARDS Section

This product contains a highly flammable ingredient. It may cause a fire or explosion if not used properly. Follow the “Directions for Use” on this label very carefully.

Additional Labeling to Appear in the DIRECTIONS FOR USE Section

DO NOT use more than one fogger per room. DO NOT use in small, enclosed spaces such as closets, cabinets, or under counters or tables. Do not use in a room 5 ft. x 5 ft. or smaller; instead, allow fog to enter from other rooms. Turn off ALL ignition sources such as pilot lights (shut off gas valves), other open flames, or running electrical appliances that cycle off and on (i.e., refrigerators, thermostats, etc.). Call your gas utility or management company if you need assistance with your pilot lights.

[Federal Register, February 23, 1998, Vol. 63 No. 35, pp.9077–9083]

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You better cut the pizza in four pieces because I'm not hungry enough to eat six. – Yogi Berra

* * *

Safety, Toxicity, and Exposure (Recertification Topic)

This article explains how safety is linked not just to a pesticide's toxicity but also to an applicator's exposure to the pesticides.

Although pesticide selection hinges on anticipated performance and cost, the risk associated with use is also very important; and because **risk** is relative to **toxicity** and **exposure**, two considerations are essential to proper pesticide selection: How safe (toxic) is the chemical? What will be the exposure level of the applicator?

Many complicated and competing factors affect the answers to these two questions, but choosing a pesticide with low toxicity and taking measures to lessen the potential for exposure are basic elements in minimizing risk—as are knowledge, selection, and maintenance of per-

sonal protective equipment (PPE).

Understanding Toxicity

Pesticide toxicity is something the applicator cannot change: what's in the product, is in the product. Laboratory tests conducted by manufacturers and reviewed by the U.S. Environmental Protection Agency (EPA) determine a product's toxicity and identify its strengths and weaknesses. Pesticide product testing also yields a toxicological profile of the active ingredient(s).

Evaluating Product Toxicity. Answering the following questions may help the user in evaluating the toxicity of a pesticide.

What hazards are associated with the formulation?

Certain risks are more common in some formulations than others. For instance, dusts are easily inhaled; emulsifiable concentrates are readily absorbed through the skin; and aerosols may irritate the eyes and pose inhalation problems. The formulation of a product dictates the safety precautions required, including use of PPE.

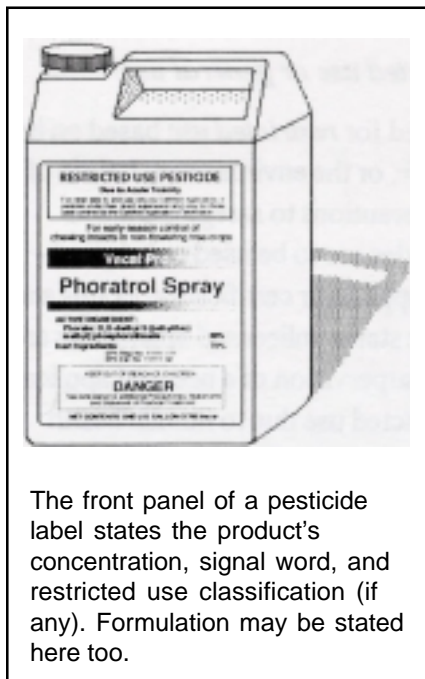
Is the product concentrated?

Pesticides in concentrated form pose a greater risk to the user than do ready-to-use (diluted) products for two reasons: 1) Any product in concentration is more toxic than a dilution of the same product; and 2) an additional step—mixing with water or other carriers—is required before application of a concentrate, thereby increasing the handler's potential for exposure resulting from splashes or spills. The mixing and loading of a concentrated pesticide generally require more PPE than does application of the diluted product.

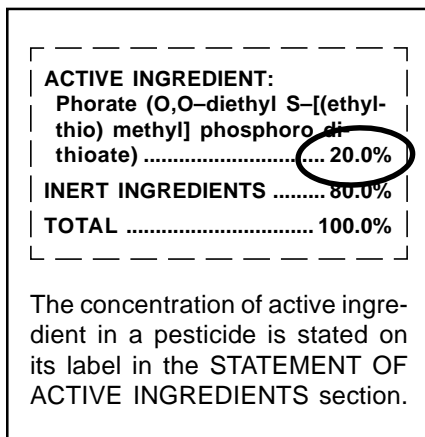
What is the signal word on a pesticide product?

The relative toxicity of a pesticide is reflected on the label by signal words: DANGER (most toxic); WARNING (moderately toxic); CAUTION (least toxic). Signal words also can reflect the toxicity of the product's nonlethal effects such as skin and eye irritation.

The most vulnerable route of entry determines the signal word. For example, if product XYZ is moderately toxic when absorbed through the skin, highly toxic if inhaled, and only slightly toxic if swallowed, its signal word would be DANGER based on inhalation studies. Two pesticides labeled with the same signal word may or may not require the same PPE because that distinction is based on the most vulnerable route of entry as determined during the testing process. A pesticide with the signal word CAUTION usually will require less PPE than one carrying the signal word WARNING or DANGER. Labels of very toxic pesticides carry the signal



The front panel of a pesticide label states the product's concentration, signal word, and restricted use classification (if any). Formulation may be stated here too.



The concentration of active ingredient in a pesticide is stated on its label in the STATEMENT OF ACTIVE INGREDIENTS section.

word DANGER, accompanied by precautionary statements mandating the use of additional PPE.

Is the product classified for restricted use or general use?

A pesticide product may be classified for *restricted use* based on its potential effects on human health, wildlife, or the environment. Labels of restricted use products carry specific precautions to safeguard those entities. Generally, restricted use pesticides are to be used only by individuals licensed through state pesticide applicator certification exams and licensing requirements, although in some states unlicensed applicators are authorized to use them under the direct supervision of a licensed applicator. A pesticide that is classified for restricted use due to human health concerns requires more PPE than an unclassified (“general use”) product.

What are the acute effects of the pesticide?

There is a *material safety data sheet* (MSDS) for every pesticide product. The MSDS provides details on the effects of acute (very short-term or one-time) exposure to the pesticide, as well as information on dermal and inhalation toxicity and eye irritation. It contains data on any birth defects, cancer, or reproductive impairments indicated in laboratory studies. The toxicological information summarized in an MSDS forms the basis for label requirements specifying certain protective clothing and equipment. MSDSs are prepared for all product formulations, but few manufacturers write MSDSs for end-use dilutions.

Have chronic effects been documented?

The MSDS provides information on possible adverse health effects linked to chronic exposure (multiple exposures, over time) to the product. Information on cancer, birth defects, and other potential chronic effects, if any, is included in the MSDS. While the short-term effects of a pesticide may be minimal, requiring only basic PPE, its cumulative, long-term effects may necessitate label language specifying more sophisticated equipment.

Applicator Safety Based On Exposure

Employee attitudes about personal safety and PPE for pesticide use often reflect the views of coworkers and supervisors. If pesticide safety and the use of suitable PPE are actively promoted by the upper echelon as means of avoiding overexposure, thereby protecting health and safety, employees may be more willing to comply. Companies that emphasize pesticide safety and consistent use of appropriate PPE are less likely to

jeopardize their employees' health and corporate profits—and less likely to face pesticide-related lawsuits and penalties for noncompliance. On-the-job training, hands-on demonstrations, work evaluations, and compliance checks by supervisors can stimulate consistent use of PPE.

Evaluating Risk Potential Based on Applicator. A company's commitment to pesticide safety is a key factor in whether or not its use of a given product constitutes risk. Applicators who have PPE available and have been trained to use it properly can minimize exposure, thus protecting their health and that of their coworkers regardless of the product's toxicity. The following questions will assist in evaluating the potential for applicator exposure.

How many employees work for the firm?

The more pesticide applicators a firm has, the greater the chance that someone will neglect to follow safety precautions; thus, the greater the chance that an accident will occur.

How experienced are the employees?

Inexperienced employees—young or old, full- or part-time—may not recognize the importance of PPE; therefore they must be educated on its importance and trained to use it properly. Complacency must be addressed. Random inspection should be an ongoing activity to emphasize the importance of PPE and other safety considerations.

Are all employees trained adequately?

Realistically, part-time employees often are not given the safety training available to full-time workers, but this is not acceptable: It is the responsibility of the employer to train all employees, their hours on the job notwithstanding.

For what length of time does each applicator use pesticides?

Applicators whose primary duty year-round is applying pesticides obviously are more likely to be involved in a pesticide-related accident than are those who apply pesticides less often. In addition, those who apply pesticides over a long period of time become the subjects of chronic exposure, whereas those who apply chemicals infrequently are less likely to experience cumulative effects.

Answers to the preceding questions should render valuable insights into risks posed to workers who use pesticides. Employers who admit that safety has not been a high priority should consider immediate imple-

A Hawaii employer must develop and set up for employees a *hazard communication plan* according to

[continued on next page]

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rules of the Hawaii Department of Labor and Industrial Relations. Components of a "haz com" plan include: an inventory of *hazardous materials* in the workplace, material safety data sheets, personal protective equipment (when required), and training for employees. The Department's CONSULTATION-TRAINING SERVICES (ph. 586-9100 Honolulu) can provide details, guidance, and examples.

Maintaining Your Personal Protective Equipment (Recertification Topic)

Protective clothing means at least a hat or other suitable head covering, a long-sleeved shirt and long legged trousers or a coverall type garment (all closely woven fabric covering the body, including arms and legs), shoes and socks.

mentation of a program to protect the health and safety of their employees.

Just as important, high risk pesticides—those that are restricted for health reasons, those that are acutely toxic, and those linked to chronic concerns—should not be used until a safety education program is under way. One option is to select the least toxic pesticide that is effective against the target pest, thereby reducing risk potential.

[SOURCE: Pages 3-6 in *Pesticides and Personal Protective Equipment: Selection, Care, and Use*, January 1997. (#PPP-38, Purdue Pesticide Programs, Purdue University Cooperative Extension Service). Fred Whitford (Coordinator, Purdue Pesticide Programs), Janis Stone (Extension Textiles and Clothing Specialist, Iowa State University), and Tracy MacMillan (Director of Marketing, North Safety Products). Arlene Blessing (Purdue Pesticide Programs), editor.]

* * *

When handling any pesticide, you're likely to be exposed to it through skin contact. You might be further exposed to pesticide that remains as residue on your personal protective equipment (PPE) or *protective clothing*. How you handle them after using the pesticide determines the extent of this additional exposure.

PPE or protective clothing worn during a pesticide application should always be removed immediately after use. This habit will prevent your work place, the inside of your vehicle, your home or other areas from being contaminated. You should never wear your contaminated clothing home, or while eating, drinking, smoking, or using the bathroom. Have a clean change of clothes available in case your protective clothing becomes contaminated and need to be removed right away.

You should wash your contaminated gloves with soap and water before you remove them. This will prevent you from getting pesticides on your hands as you remove them. If the type of PPE allows you to, it is also recommended that you wash your contaminated PPE before removing it. This will help keep pesticide residues from contaminating other materials or items. After removing your PPE, it should be prerinsed before laundering. Rinse it by either hosing it down outdoors or soaking it in a separate tub or pail.

To prevent transfer of any pesticide residue from your protective clothing to your family's laundry, store and wash them separately. Use hot water with a heavy-duty laundry detergent. Wash only a few garments at a time, use a normal cycle, and allow for two full rinses. The laundered protective clothing should then be hung outdoors and allowed to air dry.

You can reduce the risk of exposing yourself or your family to

pesticides by following these “Guidelines For Laundering Pesticide-Contaminated Clothing.”

Guidelines For Laundering Pesticide-Contaminated Clothing

Air	Hang garments outdoors to air.
Prerinse	Use one of three methods: <ul style="list-style-type: none"> • Hose off garments outdoors • Rinse in separate tub or pail • Agitate in automatic washer
Pretreat (heavily contaminated or heavily soiled garments)	Use heavy-duty liquid detergent or a prewash product
Washer Load	Wash garments separately from family wash Wash garments contaminated with the same pesticide together
Load Size	Wash only a few garments at a time
Water temperature	Use hot water, 140°F or higher
Wash Cycle	Use normal 12-minute cycle
Laundry Detergent	Use a heavy-duty detergent Use amount recommended on package or more for heavy soil/hard water [There seems to be no advantage to using bleach or ammonia.]
Rinse	Use two, full, warm rinses
Dry	Line dry (to avoid contaminating dryer)
Clean Washer	Run complete, but empty, cycle, using hot water and detergent

[SOURCE: “Guidelines for Laundering Pesticide-Contaminated Clothing” from *Guidance Manual For Selecting Protective Clothing For*

[continued on next page]

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Agricultural Pesticides Operations. September 1993. U.S. Environmental Protection Agency, Risk Reduction Engineering Laboratory, Office Of Research And Development.]

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Hawaii's Agricultural Gateway Website

The URL for *Hawaii's Agricultural Gateway* website is www.hawaiiag.org. It is jointly sponsored by the Hawaii Farm Bureau Federation, the Hawaii Department of Agriculture, the UH College of Tropical Agriculture and Human Resources, and others.

To find answers to SOME COMMONLY ASKED QUESTIONS ABOUT PESTICIDES, follow two links—**Government Regulators/Regulations Advice and Pesticide Use**—to the Hawaii Department of Agriculture's web page.

Revisit the website periodically and look for the link to the PESTS IN HAWAII webpage. It's coming soon in the section for "Gardeners, Homeowners, and Pet Owners."

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