



Wear Protective Clothing When Applying Pesticides¹

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Wear protective clothing when applying pesticides to reduce your risk of pesticide poisoning. Pesticides enter the body most frequently through the skin. Other ways are through the eyes, nose or mouth.

READ THE PESTICIDE PRODUCT LABEL

Your risk depends on both exposure to and the toxicity of the pesticides. Many pesticide product labels give information on protective clothing along with the application and handling procedures. The signal words on the label can help you to determine the type of clothing to wear and what to do if there is an accident or spill. The three signal words are:

DANGER/POISON - highly hazardous

WARNING - moderately hazardous

CAUTION - slightly hazardous

Statements like "*harmful if inhaled*" or "*fatal if inhaled*" mean that you need to wear a respirator. Product formulation also matters. In general, oil-based liquids (emulsifiable concentrates) absorb easily through the skin, so you need to protect your skin. Dusts, wettable powders and broken particles from granules are inhaled easily, so you may need a respirator.

PROTECTION OFFERED BY CLOTHING

Regular work clothing made of heavy weight, tightly woven fabrics gives you some protection. Specialized liquid-proof, chemical-resistant clothing gives you much more, but you may not feel as comfortable. In North Carolina's climate it is difficult to be comfortable when

you need the greatest protection. In general, you should always:

- Wear work clothing with long pants and sleeves. (Clothing with a soil-repellent finish can increase your protection).
- Wear unlined, liquid-proof, chemical-resistant gloves; unlined neoprene or rubber boots; and a widebrimmed hat.
- Wear a chemical-resistant apron over cloth coveralls when mixing, loading or handling undiluted pesticides.
- Wear a liquid-proof, chemical-resistant coverall or suit with a hood or a waterproof, wide-brimmed hat if there is any chance of becoming wet with spray.
- Wear a respirator whenever there is a risk of inhaling pesticide vapors, fumes or dust.
- Wear an eye or face shield if the pesticide may splash.

REGULAR WORK CLOTHES

Cover up to get the most protection from regular work clothes. Wear long pants and long sleeves. Button your shirt at the neck and the wrist. Layer clothing for better protection. Protect your feet with work shoes or boots and socks. Remember, some jobs involving pesticides need more protection than regular work clothes can offer.

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Always keep clothing worn when applying pesticides separate from the rest of the wash. When applying pesticides, wash pesticide-soiled clothing daily. Wash separately from the family wash, using hot water and a heavy-duty detergent. Pre-rinsing or presoaking also may help. *Laundering Pesticide-soiled Clothing*, gives more laundering recommendations.

GLOVES

Always protect your hands whenever you handle pesticides, including unopened or empty pesticide containers and pesticide-contaminated equipment, clothing and materials. Unlined, clean gloves at least 12 inches long with sealed seams are necessary when handling undiluted or highly toxic pesticides. Nitrite, neoprene and butyl rubber are good choices. Use strong rubber latex gloves when working with diluted, less toxic pesticides. If you tear a glove, replace it. Do not wear cotton or leather gloves; they can absorb significant amounts of pesticide and cannot be cleaned thoroughly.

If you are working with your arms down, wear your sleeves outside of your gloves to prevent pesticides from naming down sleeve to the inside of the gloves. When working with your arms raised, cuff the gloves and wear them over your sleeves to catch drips. Use duct tape or elastic bands to seal the gloves at the sleeve if you are going to be raising and lowering your arms. To keep pesticides off your hands, wash the outside surface of gloves before you take them off. Then wash the inside of the gloves.

CHEMICAL-RESISTANT CLOTHING

(Aprons, Rainsuits, and Other Specialized Protective Clothing)

Wear chemical-resistant clothing when mixing, loading or handling undiluted and toxic pesticides. A few pesticide labels specify that a chemical-resistant protective suit is required when applying the pesticide.

"Chemical resistant" means that there will be no measurable movement of the pesticide through the material during the period of use.

The protection offered by chemical-resistant clothing depends upon the fabric and design features, such as flaps over zippers and bound or sealed seams. Such garments often are elasticized at the wrist and ankle. A butyl rubber, neoprene, or Tyvek apron over work coveralls, a PVC rainsuit, or one of the newer chemical-resistant coveralls is appropriate. You will be

safest and most comfortable in protective clothing that fits.

Tyvek is a disposable chemically resistant protective clothing fabric. The non-woven olefin fabric is worn over regular work clothing. Tyvek comes uncoated or as a laminate (polyethylene [PE] -coated or Saranex 23P). Uncoated Tyvek is about as effective as soil-repellent finished cotton or cotton/polyester blends. The laminates of Tyvek, especially Saranex-23P, are suitable for handling undiluted and highly toxic pesticides.

Do not use PE Tyvek if there will be extended exposure to liquid organophosphates, because the emulsifier may damage the PE coating. Organophosphates include malathion, acephate (Orthene), terbufos, diazinon, fonofos and diamethoate.

Research at the University of North Carolina at Greensboro has shown that protective clothing with a soil-resistant Mesh can provide both comfort and safety. Such garments may be made of nonwoven fabrics containing wood pulp (Sontara is an example) or olefin (SMS for example) fibers.

FOOTWEAR

Your feet and shoes also need protection from pesticide spills. Put your pant legs over your boots. Unlined neoprene or butyl rubber boots, or Tyvek shoe or boot covers should be worn. Wear clean socks daffy. Leather and canvas shoes, including tennis shoes, cannot be cleaned thoroughly and should never be worn without rubber or neoprene boots. Always clean the outside of boots before removing them.

EYE PROTECTION

Wear goggles, a face shield, or shielded safety glasses to protect your eyes from splashes and dust particles. You can get face shields that fit on a hard hat. Goggles or shielded safety glasses should be worn with a negative-pressure respirator or a dust mask. Goggles that fit snugly around the nose and at the temple offer the best protection.

HEAD AND NECK PROTECTION

A chemical-resistant hood or wide-brimmed hat will help keep pesticides away from your neck, eyes, mouth and face. If you are doing airblast spraying, it is critical that you cover your head and neck. Many PVC or Tyvek coveralls and raincoats/suits have attached hoods. Do not use a hard hat with a cloth or leather sweatband.

Baseball caps are made with fabric mesh or designed with open areas, and they will not protect you from pesticide exposure.

RESPIRATORS

You can absorb large amounts of pesticides through your nose and lungs. Wear respiratory devices with a particle cartridge or canister designed for pesticides when there is a chance that you might inhale pesticide vapors, fumes or dusts. Disposable dust masks do not offer enough protection to be used around pesticides.

Some pesticide labels list the types of respirators to wear when handling and applying those products. No one type of respirator will protect you from every kind of pesticide. NIOSH (National Institute of Occupational Safety and Health) and MSHA (Mine Safety and Health Administration) certify certain respirators for certain types of chemicals. When a label calls for a respirator, use the one approved by NIOSH and MSHA for that type of chemical.

It is strongly recommended that you hire a professional to apply fumigants or other highly toxic gases. Refer to the Pesticide Applicator Training Manuals at The North Carolina Cooperative Extension Service office in your county for additional information on selecting, wearing and adjusting respiratory devices.

WHERE TO BUY SPECIALIZED PROTECTIVE CLOTHING

To find suppliers of protective clothing items, look under "Safety Equipment" in the Yellow Pages of the telephone directory. Gloves and boots, hard hats with the face shields and goggles, and neoprene rainsuits and coveralls may be available at farm, veterinary, safety and building supply departments.

If the Tyvek clothing is not available locally, it can be ordered from farm and chemical safety catalogs. Some examples are:

Gempler Supply Company inc.
PO Box 617
Stoughton, WI 53589

Mine Safety Appliances Company
1000 Nicholas Boulevard
Elk Grove Village, IL 60007

SUMMARY

Wearing protective clothing helps to reduce your risk of exposure to pesticides. The types of clothing and how the clothing is worn influence how well you are protected. **In all cases, read the pesticide label and follow the instructions as the final authority.**

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For information on laundering pesticide-soiled clothing, see *Laundering Pesticide-Soiled Clothing*.

Mention of tradenames in this publication does not imply endorsement of such products nor criticism of similar products not mentioned.