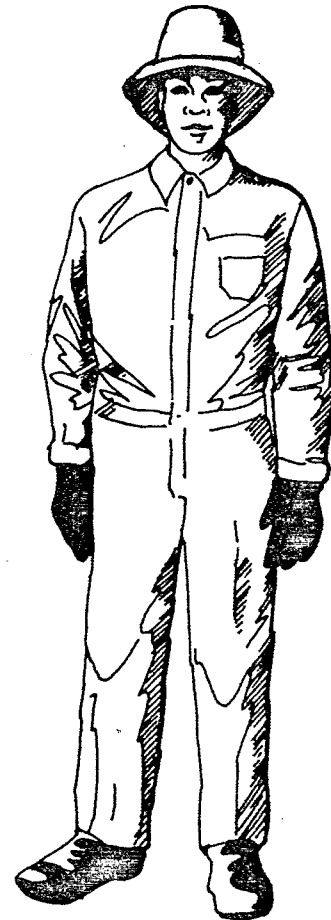


PERSONAL
PROTECTIVE
EQUIPMENT GUIDE
**COVERALLS,
GLOVES,
AND
OTHER
SKIN
PROTECTION**



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Any time you or the people you supervise may be exposed to a pesticide, consider the need to use personal protective equipment (PPE) — clothing and devices that protect the body from contact with pesticides.

The law requires pesticide users to follow all PPE instructions on the pesticide label.

More protection may be a good idea in some situations.

When Is PPE Needed?

Exposure to pesticides — getting them on or in the body — can cause harm. Prevent or reduce the risk by wearing PPE when exposed to pesticides at work. Pay particular attention to covering the skin, because it is the part of the body that usually gets the most exposure during pesticide handling tasks.



Most pesticide handlers know to wear PPE during mixing, loading, and application, but many do not wear it at other times when they may be exposed.

Wear PPE for any task that could cause pesticides to get on the skin or in the mouth, eyes, or lungs

For example:

- disposing of pesticides or pesticide containers,
- transporting (or carrying) pesticide containers that are open or have pesticide spilled on the outside,

- helping with an application, such as scouting, monitoring, or checking pesticide coverage,
- flagging for aerial applications,
- cleaning, adjusting, or maintaining equipment that has pesticides on it,
- entering enclosed areas after fumigation to measure air levels or operate ventilation systems,
- entering treated areas after soil fumigation to adjust or remove coverings, such as tarpaulins,
- cleaning up spills.

Using PPE Correctly

Remember that PPE can provide protection only if the pesticide remains on the outside of the material. Once the pesticide gets inside the PPE, the material holds the pesticide next to the skin. When this happens, the pesticide may cause skin irritation or may go through the skin and into the body.

Know how to use PPE correctly, and be sure it is clean and in good operating condition. Put on and remove the equipment carefully and do not contact any pesticides that may be on the outside of it. Do not “cheat” on PPE by taking off gloves to adjust equipment or by pulling the respirator away to scratch, wipe off sweat, or take a deep breath while still exposed to the pesticide. Do not wipe gloves on clothing; this will contaminate the clothing, and pesticide may move through to the skin.

Body Protection

For any pesticide handling task, wear at least a long-sleeved shirt and long-legged pants. In many instances the pesticide label will require coveralls, a chemical-resistant suit, or a chemical-resistant apron.

Long-sleeved shirt and long pants

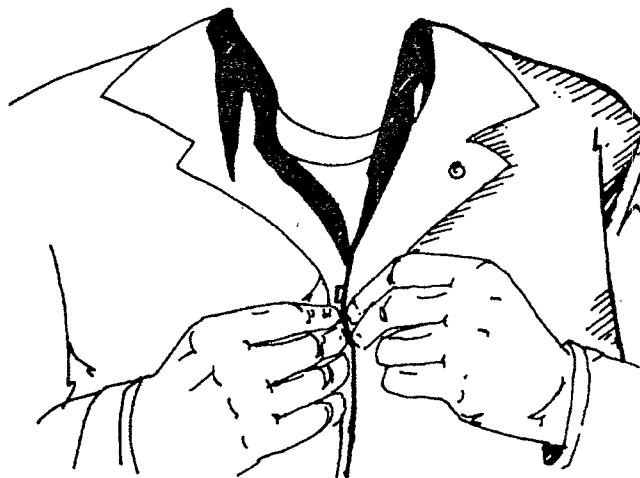
Long-sleeved shirts and long pants should be made of sturdy material. Fasten the shirt collar to protect the lower part of the neck.


Coveralls

Coveralls should be made of a woven fabric such as cotton, polyester, a cotton-synthetic blend, or a nonwoven fabric. Woven fabric should be a tightly woven, sturdy material (such as denim) weighing 7 to 10 ounces per square yard.

One-piece coveralls look like jump suits or flight suits. Two-piece coveralls look like surgeons' suits. Fasten coveralls securely so the entire body is covered except the feet, hands, neck, and head. Do not tuck a two-piece coverall in at the waist; the shirt should extend well below the waist and fit loosely around the hips.

More body protection is a good idea when handling pesticides that are highly or moderately toxic when absorbed through the skin or that are skin irritants. Unless the label directs otherwise, wear a coverall over other clothing, preferably a long-sleeved shirt and long pants. The clothing under the coverall should cover the body at least from shoulders to thighs. The pesticide labeling may specify a particular type of clothing to be worn under the coverall.





Several factors affect the amount of protection a coverall provides. The coverall should fit loosely. Unless there is a layer of air between the coverall and the skin, any pesticide that gets through the coverall will be in direct contact with the skin. Each layer of clothing worn under the coverall adds not only a layer of material, but also a protective layer of air.

The design of coveralls also influences the amount of protection they offer. Well-designed coveralls have tightly constructed seams and snug, overlapping closures that do not gap or become unfastened readily.

Chemical-resistant suit

A few pesticide labels require handlers to wear a chemical-resistant suit. This usually indicates that the pesticide is very hazardous and that extra care is necessary. When a large amount of pesticide could be deposited on the clothing, consider wearing a chemical-resistant suit even if pesticide labeling does not require it.

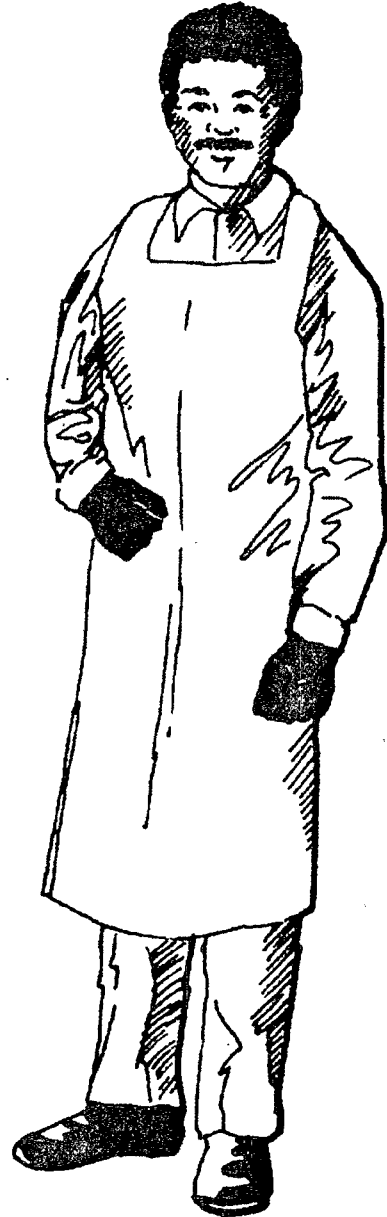
Chemical-resistant suits may be one-piece coveralls or two-piece outfits consisting of a jacket worn over overalls or pants.

Except in cool or climate-controlled environments, chemical-resistant suits can be uncomfortably warm to wear. Even in moderate temperatures, wearing a chemical-resistant suit can quickly cause overheating. Take precautions to avoid heat stress.

Chemical-resistant apron

The pesticide label may require a chemical-resistant apron while mixing and loading and while cleaning pesticide equipment. Consider wearing an apron for any handling task that involves concentrated pesticides. It will protect against splashes, spills, and dusts and will protect coveralls and other clothing. Wear the apron over the coveralls or the long-sleeved shirt and long pants that the label requires for application or other handling activities.

Choose an apron that extends from the neck to at least the knees. Some aprons have attached sleeves; these are especially protective, because they protect the arms and front and eliminate the gap where the sleeve and apron meet.



In some situations, an apron can be a safety hazard; it can get caught in machinery or get in the way. In those situations, consider wearing a chemical-resistant suit instead.



Hand and Foot Protection

Hands and forearms get the most pesticide exposure. As a result, most pesticide labels require handlers to wear chemical-resistant gloves. Unless the label states otherwise, wear chemical-resistant gloves any time pesticides may get on the hands.

Pesticide handlers often get pesticides on their feet. Many pesticide labels require chemical-resistant footwear, which can be shoes, shoe covers, or boots.

Shoes and socks are allowed by some pesticide labels. However, canvas, cloth, and leather are difficult or impossible to clean adequately. Consider using chemical-resistant footwear when pesticides, especially concentrates, may get on footwear.

Choosing gloves and footwear

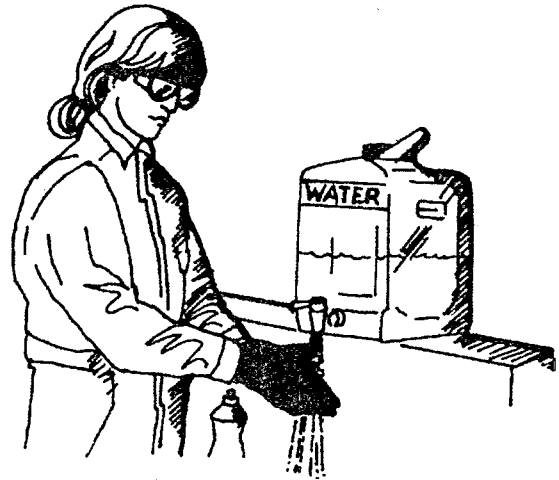
Unless the pesticide label directs otherwise, use only unlined gloves or boots. Gloves and footwear made of polyvinyl chloride (PVC) or rubber (butyl, nitrile, neoprene or natural rubber) must be at least 14 mils thick.

Always use new or freshly cleaned gloves and footwear. Items that have been used before may already have pesticides on the inside.

Using gloves and footwear

Do not contaminate the inside of gloves and footwear. If pesticides get inside gloves or footwear, take them off immediately, wash, and put on a clean pair. Keep several pairs of clean gloves and footwear available and change whenever necessary.

Contamination often happens when handlers remove gloves to adjust equipment, open a pesticide container, or wipe their face, and then replace the gloves over contaminated hands.



Wash gloves thoroughly *before* taking them off, and wash hands thoroughly and dry them before putting gloves on again.

Handlers sometimes make the mistake of putting on footwear with contaminated hands. This may transfer the pesticide from hands to feet.

Keep pesticides from running down sleeves or pants legs and into gloves or footwear. Use gloves that reach at least halfway to the elbow, put the sleeve over the glove, and fasten at the cuff. Or fasten the glove tightly to the outside of the sleeve with heavy-duty tape, an elastic band, or another fastener so the pesticide cannot run down into the glove.

For jobs where the legs will be exposed to pesticides, wear trouser legs outside the boots

or fasten shoe covers tightly to the trouser leg. This keeps the pesticide from running down the trouser leg and collecting in boots or shoe covers.

Head and Neck Protection

If the head and neck will be exposed to pesticides, wear a chemical-resistant hood or chemical-resistant wide-brimmed hat. Plastic "safari" hats with plastic sweatbands or "firefighter"-style hats are a good choice, and they are relatively cool in hot weather. Other hats and hoods are also available in chemical-resistant materials.

Some chemical-resistant jackets and coveralls have attached protective hoods. If the attached hood is not being used, tuck it inside the neckline so it will not collect pesticides.



INTERPRETING PPE STATEMENTS ON PESTICIDE LABELS

Label Statement	Acceptable PPE
Long-sleeved shirt and long pants	Long-sleeved shirt and long pants, or Woven or nonwoven coverall, or Plastic- or other barrier-coated coverall, or Rubber or plastic suit
Coverall worn over short-sleeved shirt and short pants	Coverall worn over short-sleeved shirt and short pants, or Coverall worn over long-sleeved shirt and long pants, or Coverall worn over another coverall, or Plastic- or other barrier-coated coverall, or Rubber or plastic suit
Coverall worn over long-sleeved shirt and long pants	Coverall worn over long-sleeved shirt and long pants, or Coverall worn over another coverall, or Plastic- or other barrier-coated coverall, or Rubber or plastic suit
Chemical-resistant apron worn over coverall or over long-sleeved shirt and long pants	Chemical-resistant apron worn over coverall or long-sleeved shirt and long pants, or Plastic- or other barrier-coated coverall, or Rubber or plastic suit
Chemical-resistant protective suit	Plastic- or other barrier-coated coveralls, or Rubber or plastic suit
Waterproof suit or Liquidproof suit	Plastic- or other barrier-coated coveralls, or Rubber or plastic suit

Label Statement	Acceptable PPE
Waterproof gloves	Any rubber or plastic gloves sturdy enough to remain intact throughout the task being performed
Chemical-resistant gloves	Barrier-laminate gloves, or Other gloves that glove selection charts or guidance documents indicate are chemical-resistant to the pesticide for the period of time required to perform the task
Chemical-resistant gloves such as butyl or nitrile	Butyl gloves, or Nitrile gloves, or Other gloves that glove selection charts or guidance documents indicate are chemical-resistant to the pesticide for the period of time required to perform the task
Shoes	Leather, canvas, or fabric shoes, or Chemical-resistant shoes, or Chemical-resistant boots, or Chemical-resistant shoe coverings (booties)
Chemical-resistant footwear	Chemical-resistant shoes, or Chemical-resistant boots, or Chemical-resistant shoe coverings (booties)
Chemical-resistant boots	Chemical-resistant boots
Chemical-resistant hood or wide-brimmed hat	Rubber- or plastic-coated safari-style hat, or Rubber- or plastic-coated firefighter-style hat, or Plastic- or other barrier-coated hood, or Rubber or plastic hood, or Full hood or helmet that is part of some respirators

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PPE Guides in this series include:

- Coveralls, Gloves, and Other Skin Protection
- Clothing Layers for Added Protection
- Choosing Chemical-Resistant PPE
- Protective Eyewear
- Respirators
- Inspecting, Maintaining, and Replacing PPE
- Avoiding Heat Stress