



PROTECTIVE CLOTHING FOR PESTICIDES

Protective clothing used when mixing, loading, or applying pesticides provides a barrier between the pesticide and the human body. Respirators and gas masks protect against oral and respiratory exposure by covering the nose and mouth and by filtering inhaled air. Gloves, boots, hats, and body coverings protect against dermal exposure. Goggles and face shields protect the eyes.

Respirators can be half face (cover nose and mouth) or full face (cover nose, mouth and eyes). Gas masks are full face. They generally have replaceable filter cartridges. Pesticide users need cartridges specifically made for pesticides. Cloth masks or dust masks are not recommended, as they provide no protection against vapors. Full face respirators provide both respiratory and eye protection and are needed when irritating or highly toxic fumes and/or vapors are a concern.

Body coverings can be made of cotton, blended fabric, vinyl, neoprene, rubber, or lightweight synthetic garments. Almost any body covering provides some protection. Conventional work clothes, usually of cotton or blended fabric, provide protection when mixing, loading, or applying dry or dilute field concentrations of pesticides. They are not recommended during mixing and loading of liquid concentrates or liquid spray applications where contact is likely to occur. Vinyl, neoprene, or rubber garments provide adequate protection if kept free of chemical contamination, but under hot and/or humid conditions they can be very uncomfortable and can lead to heat exhaustion or hyperthermia. The lightweight synthetic garments can provide adequate protection if used in conjunction with a liquid proof apron during mixing and loading. These garments can have added coatings for additional protection when spraying more toxic pesticides. Important points to keep in mind are that applicators often begin spray operations wearing minimal protective clothing and then add more at a later point thus covering the contaminated skin or garments; this may increase dermal absorption of the pesticide that is under the added protective clothing. Secondly, hot weather may increase the rate of dermal absorption when spray applicators tend to use less protective clothing.

Foot protection is always important when working with pesticides, especially when mixing and loading liquid concentrates and when walking through sprayed areas. Boots and shoes made of leather or canvas are not recommended when working with liquid pesticides as they absorb the liquids and hold them against the foot. They are difficult to decontaminate, and the continual wetting and drying causes cracking which makes pesticide penetration to the foot even easier. Rubber boots are best for working with organophosphate insecticides while all waterproof boots are generally adequate for other pesticides. Boots should be worn with the pant legs on the outside to prevent pesticides from entering the top of the boot. Boots should be unlined for easy cleaning.

Gloves are helpful during all pesticide operations, but especially during mixing and loading of liquid concentrates. Canvas, cloth, or leather gloves should not be used for liquid operations for the same reasons as with canvas or leather boots. Lightweight plastic and rubber gloves provide some protection, but heavyweight waterproof gloves are recommended. Gloves should be unlined and have a cuff or anti-drip line so liquids do not run down the arm. Rubber gloves are recommended for organophosphate insecticides. Rubber or plastic gloves are suitable for most other pesticides.

Head protection should always be worn when working with pesticides especially during liquid spray operations. Billed caps provide some protection but not to the lower head, neck, and ear areas. Additionally, they absorb pesticides and are difficult to decontaminate. Plastic hard

hats with wide brims and nonabsorbing liners are better. However, because of air circulation space over the head, they are not adequate protection when working with highly toxic mists and dusts. Sou'wester style hats (those with a wide slanting brim longer in back than in front) are most often recommended. Generally they have brims that protect the front, side and back of the head and neck. A front brim is very beneficial protection against downward drift to the face. Waterproof hoods provide little face protection unless they have front brims.

Eye protection is important during mixing and loading operations with all pesticides especially liquids or where irritating fumes or vapors may be present. Full face respirators are recommended for eye protection against highly toxic pesticides. Face shields provide protection against pesticide splash but not dusts, mists, fumes, or vapors. Cup goggles will seal out splashes, mists, dusts, fumes, and vapors. Single lens goggles with hooded or baffled ports protect against splashes, mists, and dusts but not fumes or vapors.

All protective clothing must be kept clean and be decontaminated after use. Failure to do this can make exposure more severe than if no protective clothing were used. Contaminated protective clothing holds the pesticide against the skin frequently under hot and moist conditions which can lead to increased rates of absorption. Wash protective clothing in detergent and water and air dry preferably exposed to sunlight. Check the condition of protective clothing periodically and replace torn or perforated items. Change respirator cartridges as recommended by the manufacturer or whenever chemical odors are detected during use or when breathing becomes difficult because of filter plugging. Always have spare cartridges available. Wash the face piece, with the filters removed, in detergent and water, rinse thoroughly, and dry in a well ventilated area. Do not use alcohol or solvents to clean the face piece.

The following companies stock or can order types of protective clothing:

Industrial Supply Co. Inc.
1635 South 300 West
Salt Lake City, UT 84115
1-801-484-8644, 1-800-288-3838

All West Sales and Service
4520 West 2100 South Suite 600
Salt Lake City, UT 84120
1-801-886-9100, 1-800-326-5421

Safety-West, Inc.
2500 S. Decker Lake Blvd #9
West Valley City, UT 84119
1-801-972-5800, 1-800-533-8565

Mine Safety Appliances Co.
PO Box 426
Pittsburg, PA 15230
1-800-672-2222

Bonneville Industrial Supply
45 South 1500 West
Orem, UT 84058
1-801-225-7770, 1-800-892-7534

For further information, you may order an EPA Guidance Manual through the NSCEP:

Title: *Guidance Manual: Selecting Protective Clothing for Agricultural Pesticides Operations, 1994*

EPA Publication Number: 736-B-94-001

Address: National Service Center for Environmental Publications

P.O. Box 42419

Cincinnati, OH 45242-2419

<http://www.epa.gov/ncepihom/ordering.htm>

Phone: 1-800-490-9198 Fax: (513) 489-8190