

## **Washing Clothing Worn While Handling Pesticides**

All clothing worn while handling pesticides should be considered contaminated, whether or not it is obvious. Work clothing worn while mixing, loading, or applying pesticides (even that worn during granular applications) must be stored and washed separately from the rest of the laundry; and it is the responsibility of the user, be it employer or applicator, to ensure that it is. Further, it is the responsibility of the supervisor to inform the person in charge of the laundry, whether it is done by a commercial laundry service or in the home, that work clothes are contaminated.

Labels seldom explain how to launder pesticide contaminated clothing. At best, a label might instruct the user as follows—and all of it is good advice: Discard clothing that has been drenched or heavily contaminated with product concentrate. Do not reuse it. Follow manufacturer's instructions for cleaning PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separate from other laundry.

Success in washing pesticide residues from common work fabrics hinges on the pesticide and its formulation, the fabric thickness and fiber content, the laundering method, and the length of time between contamination and laundering. The longer the wait, the less is removed. Follow these safety tips when washing work clothes worn while using pesticides.

### **Step-by-Step Methods for Laundering Pesticide-Contaminated Clothing**

- Empty pockets and cuffs of clothing worn for granular applications, outdoors, to remove trapped granules before the clothing is stored to be washed. But don't sit on the back step to do this! Pesticide debris of this nature must be emptied onto an appropriate (application) site; that is, if a pesticide is not labeled for use on turf, it is likewise inappropriate—and illegal—to empty small quantities of the product from pockets and cuffs onto the lawn. Also, stay clear of children's play yards, pet and livestock facilities, and any other sensitive areas.

- Discard clothing that has been drenched by a concentrate, because the pesticide probably could not be removed to a safe level. Some studies indicate that heavily contaminated clothing still has detectable residues after ten washings, so be on the safe side: Discard drenched clothing.

- Wash contaminated clothing the day contamination occurs.

- Store contaminated clothing in a trash bag or hang it away from the family living space, in a work shed or on a clothes line outdoors.

- Never put contaminated work clothes in cloth bags or laundry baskets with other family laundry.

- Remember that socks and undergarments also may be contaminated and should be stored and washed separately from the family laundry.

- Open the washer door before handling pesticide contaminated clothing to avoid contaminating the outside of the washer.

- Wear rubber or chemical-resistant gloves to handle contaminated clothing. Pesticides can transfer from fabric to the skin and from one fabric surface to another. Do not use these gloves for other purposes; residues on gloves can transfer to water, fabrics, and other surfaces.

- Prerinse or presoak contaminated clothing in a separate tub or use the rinse cycle of the washer. When using a washer, drain the water and refill for washing.

- Pretreat contaminated clothing with a solvent-based prewash spray, especially if the contaminant is an emulsifiable concentrate.

- Wash pesticide-contaminated clothing separately from the family laundry. Research has shown that pesticide residues can be transferred from contaminated clothing to uncontaminated fabric in the wash water.
- Wash contaminated clothing and other PPE daily, as soon as possible after wearing. Delay in laundering will reduce the likelihood of total residue removal. Pesticides may bond to oily soil (if present) in clothing, making them more difficult to remove, therefore increasing the likelihood of pesticide residues remaining in laundered clothing.
- Use a heavy-duty liquid laundry detergent for best performance, especially in hard water and when the contaminant is an emulsifiable concentrate.
- Wash only a few items at a time to allow plenty of room for agitation and ample water for dilution of residues. Use the highest water level setting, even with small loads.
- Use only hot water, not warm. Set the water heater at 140°F if there are no children or elderly family members who might be in jeopardy of scalding.
- Use at least a 10-minute wash cycle.
- Use a cold water rinse to conserve energy; no benefit from a warm rinse has been demonstrated.
- Check clothes for signs of stains or odors after laundering and rewash, if necessary, before drying.
- Line dry outdoors, if possible, because some pesticides are broken down by sunlight.
- After washing contaminated clothing, run the washer through a complete cycle with hot water and detergent, without clothes, before washing family laundry. This helps flush pesticide residues from the machine.

### **Other Tips for Cleaning Pesticide-Contaminated Clothing**

- Starching cotton or cotton blend fabrics before drying may facilitate pesticide residue removal following subsequent wearings. Pesticides deposited on the fabric may bond to the starch and be washed away with it during laundering. Starch must be reapplied after each washing in order to maintain effectiveness. If the pesticide user is uncomfortable in starched clothing, consider starching specific areas of the garment. For instance, heavy starching of lower pant legs of coveralls and jeans should not create an uncomfortable fit but would enhance residue removal from that area.
- Soil- and water-repellent products applied to cotton fabrics may improve resistance to pesticide contamination, but they may make contamination that does occur more difficult to remove. If these products are used, reapply them after every second or third wash.
- Ammonia, chlorine bleach, and fabric softeners are not effective in reducing pesticide residues.
- Do not wash contaminated chemical-resistant gloves with clothing. Gloves tend to be more heavily contaminated than other garments, and washing them with the rest of the laundry could result in movement of additional pesticide residue to other items.
- Pesticide residue levels in clothing can be reduced with multiple washings; but consider the toxicity of the pesticide product, the product's water solubility, your time, and associated costs (such as water bills) compared to garment replacement costs.

Source: PESTICIDES AND PERSONAL PROTECTIVE EQUIPMENT - Selection, Care, and Use (Purdue Extension Publication PPP-38, reviewed 3/2003): <http://www.ppp.purdue.edu/Pubs/PPP-38.pdf>