

Laundering Pesticide-Contaminated Clothing

Proper care of clothing and other protective items worn during the application of pesticides helps protect the user and prevents pesticide residues from spreading to areas where people live and work. The following guidelines apply to farmers and commercial pesticide applicators, as well as to home gardeners who apply common, general-use products, such as Roundup and Sevin, to their lawns, flowers and vegetables.

Although the pesticide label should be used as a guideline for laundering contaminated clothing, most labels do not contain specific instructions. This publication should be regarded as a supplement to the information provided on pesticide labels or the Material Safety Data Sheets (MSDS) available from chemical dealers.

Saturated clothing

Do not attempt to launder clothing that has become saturated with undiluted pesticides. Saturated, contaminated clothing should be removed immediately, and the wearer should shower as soon as possible. The contaminated clothing must be secured and held for a household hazardous waste collection or be discarded in accordance with local laws and regulations. Place the clothing in an airtight, metal container, and label the container with contents and date. Do not store the container inside the house. Instead, place it in a pesticide storage facility or other location away from sources of heat, spark, flame or ignition. Contact your local MU Extension center to find out about collection programs in your area.

Protecting others from contaminated clothing

Pesticide-contaminated clothing may pose a risk to family members in addition to the person wearing the clothing. Pesticide-contaminated clothing to be laundered should be kept separate from family laundry in a disposable plastic bag. The person doing the laundry must understand that the clothing is contaminated with pesticide and requires special handling.

Minimizing the risk

The majority of pesticide exposures occur through contact with the skin. Keep in mind the following precautions to protect yourself, your clothing and others in your household who may be exposed to pesticide residues:

- Wear clean clothes when working around pesticides. It is more difficult to remove pesticide from clothes that are already dirty than from clean clothes.
- Wear protective aprons and other protective equipment listed on the label during mixing and loading of pesticides to protect against accidental spills and contamination from undiluted materials. The pesticide label will provide information about the proper personal protective equipment to wear while making applications. Use disposable protective clothing when possible. See MU Extension publication G1917, *Personal Protective Equipment for Working With Pesticides*.
- At the completion of the job, wash the outside of your gloves with detergent and water before removing them.
- Wash clothing as soon as possible after use. Delay will reduce the likelihood that all the residue will be removed.
- Wear unlined chemical-resistant gloves to handle pesticide-soiled clothes. Wash the gloves thoroughly, as if washing your hands, before removing them. Do not use the gloves for other household tasks.
- Prerinse other garments in a pail of hot water, hose them off outdoors, or agitate them in an automatic washer. Dispose of the prerinse water where it won't endanger people, animals, water sources or the environment.
- Pockets and cuffs on garments worn during application of granular pesticides should be emptied outdoors to remove trapped granules before the clothing is stored to be washed. Note that even small quantities of pesticides should be emptied only onto sites that are listed on the pesticide label as approved.
- Keep clothes worn for pesticide application separate from other laundry — before and during washing — to avoid transfer of residues. Store contaminated clothing in a disposable plastic bag, or hang it in a separate storage area until it can be laundered. Never put contaminated work clothes in a cloth bag or a laundry basket.
- Remember that socks and undergarments may also be contaminated and should be given the same special handling as other contaminated clothing.
- Open the washer door before handling the pesticide-contaminated clothing to avoid contaminating the outside of the washer.

- Do not overload the washer. Wash only a few items at a time. Wash garments contaminated by the same pesticide(s) together.
- Use a hot-water wash — the hotter the better (140 to 160 degrees F). Fill to highest water level even with small loads.
- Use the right detergent. Follow the directions on the pesticide label or use either a heavy-duty liquid detergent for liquid pesticide or a powdered phosphate detergent for granular or powdery pesticides. Heavy-duty liquid detergents are more effective than other detergents in removing emulsifiable concentrate pesticide formulations. Use the amount recommended by the manufacturer for heavily soiled loads or increase the normal amount by 1½ to 2 times.
- Additives:

Bleach and ammonia do not contribute to removing pesticide residues. Either of these additives may be used for other reasons, if desired, but with caution. Do not mix ammonia and bleach. Bleach should never be added to or mixed with ammonia because together they react to form chlorine, a potentially lethal gas.

Starch may help prevent pesticides from reaching the skin through cotton or cotton-blend fabrics. Starch must be reapplied after each wash.

Fabric softeners neither help nor hinder residue removal from cotton fabrics.

Solvent-based aerosol prewash sprays help remove oil-based pesticide formulations in cottons. The label on the prewash spray should say that the contents include petroleum solvents.

Salt helps remove paraquat but not other pesticides. Add one cup of table salt to the wash load with regular detergent. Salt also helps remove excess detergent from the washer.

Soil- and water-repellent finishes help cotton fabric resist penetration from pesticide sprays. However, these finishes make fabrics more difficult to launder and must be renewed after every second or third wash.

- Use the longest wash time cycle on your machine, at least 10 to 12 minutes. Never use the suds-saver cycle or a cycle designed for knits when washing contaminated clothing. Rinse twice. Clothing contaminated with highly toxic pesticides needs multiple washings. Check the pesticide label for toxicity level. Remember to discard clothing contaminated by undiluted pesticides.
- Hang clothes to line dry in the sun for at least 24 hours, when possible. This prevents contaminating the dryer if the pesticide has not been completely removed in the wash.
- Before doing other laundry, run the empty washer through a complete normal or regular cycle using hot water, full or normal water level, and detergent — but no clothes — to rinse pesticide residues out of the machine.
- Do not dry clean.

This publication revises and replaces MU Extension publication GH140, *Laundering Pesticide Contaminated Clothing*. Original authors: Fred Fishel, Department of Agronomy, and Sharon Stevens, Missouri Textile and Apparel Center.

ALSO FROM MU EXTENSION PUBLICATIONS

G1917 *Personal Protective Equipment for Working With Pesticides*
 MG14 *Using Pesticides Safely in the Home and Garden*

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