



# Partnership for the Environment

## *Utah Department of Environmental Quality*

### **How Dry Cleaning Works**

Dry cleaning is not, in fact, really “dry.” Dry cleaning is a method that cleans clothes without using water. Instead of water, the process uses a liquid to dissolve other substances (a solvent). The solvent generally used in dry cleaning is perchloroethylene (PCE), a chlorinated cleaner. PCE dissolves grease and oil from clothing without wetting the fibers. Any dirt that remains is then mechanically removed by the action of the dry cleaning machine.

Typical wastes generated by dry cleaners include spent PCE, still bottom residues from distillation of solvents, spent filter cartridges, cooked powder residue, and water contaminated with PCE. Although not every cleaning facility produces hazardous waste, those facilities that use solvents in the cleaning process are likely to be subject to the Resource Conservation and Recovery Act (RCRA) and state requirements that cover the generation, transportation and management of hazardous waste. All hazardous wastes must be managed and disposed of legally.

### **Good Housekeeping**

Good housekeeping measures can greatly decrease the amount of wastes that are generated. To reduce excess waste production:

- Keep tight fitting lids on containers to prevent loss of chemicals through evaporation or spillage. Keeping lids on containers also prevents mixing with water, dirt or other materials.
- Use spigots and pumps when dispensing new materials and funnels when transferring wastes to storage containers to reduce the possibility of spills.
- Provide secondary containment in areas where PCE and PCE wastes are stored.
- Store products in locations that will preserve their shelf life.
- Never mix different types of wastes together. Mixing wastes may make recycling impossible, or make waste disposal much more expensive.
- Eliminate both liquid and vapor leaks by conducting a regular maintenance program:
  1. Periodically replace the seals on the dryer deodorizer and aeration valves, the door gasket on the button trap and the gasket on the cleaning machine door.
  2. Repair holes in air and exhaust ducts.
  3. Check hose connections and couplings.
  4. Clean lint screens to avoid clogging fans and condensers.
  5. Check baffle assembly in cleaning machine.
  6. Check air relief valves for proper closure.
  7. Monitor for vapor losses with solvent leak detectors.
  8. Check to see that your water/solvent separator is working correctly. If there is an unusually large amount of PCE in your collection bucket, it is not working correctly.
- Track your solvent “mileage” (pounds of clothes per drum of PCE, to make sure your equipment is running efficiently. If mileage drops, call your equipment supplier for assistance.
- Adjust water flow through condensing coil so that entry and exit temperatures are within 100° F of each other.

### **Substitute Raw Materials**

Consider replacing your current raw materials with raw materials that reduce the amount or toxicity of the waste that you generate. For example, if you use a solvent other than PCE, use one which is not considered ignitable. You should always take into consideration the cost of disposal when you are deciding what raw materials to purchase.

## **Modify Your Process**

If you are currently using a wet-to-dry cleaning unit, consider replacing it with a dry-to-dry unit. In wet-to-dry units, you lose solvent in the transfer process. Use refrigerated condensation systems to reduce vapor losses.

## **Solvent Recycling**

There are several methods you can use to reclaim PCE from your system. PCE is expensive, so the more that is recovered, the more money is saved. Recycling methods include:

- Distilling your spent PCE in a distillation unit.
- Capturing the PCE vapors which are vented from your machine, and passing them through an activated carbon filter. The PCE is then reclaimed by passing steam in reverse, through the carbon filter.
- Using “sniffers” to draw in the PCE vapors from the shop, and then using the carbon filter process to reclaim the PCE.

## **Water Recycling**

Water that has been in contact with PCE is a hazardous waste. Whenever possible, reuse it in your dry cleaning equipment. It should never be put into a septic system and should not enter a sewer without the permission from your sewer utility.

## **Personnel Training**

Workers need proper training for their health and safety, for the health of your business, and for the health of the environment. Research has shown this is the most critical step in pollution prevention.

## **Energy and Material Conservation Program**

- Try to use the latest technology. New equipment may require less energy to operate.
- Identify all materials that are used in the facility. Evaluate how much is going into products and how much into waste.
- Monitor your water and electric meters routinely. Identify peaks and valleys for usage during the day and week. Determine if there are activities that consume water and electricity that could be curtailed during non-production hours.

## **For More Information, Contact:**

Division of Solid & Hazardous Waste - (801) 538 - 6170

Division of Drinking Water, Source Protection Program - (801) 536-4200

Environmental Hotline - 1-800-458-0145

Sonja Wallace, Pollution Prevention Coordinator - (801) 536-4477

Small Business Assistance Program - (801) 536-4479