POLLUTION PREVENTION

Dry Cleaning Operations

Waste Reduction Assistance

Provided by:
Pinellas County Department of Environmental Management
Pollution Prevention and Resource Recovery Program
512 S. Fort Harrison Avenue
Clearwater, FL  33756
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Pinellas County Department of Environmental Management’s

VISION

The Department of Environmental Management is dedicated to providing responsible leadership necessary to manage our natural and urban environment to meet the needs of our present and future Pinellas County citizens.
About this Manual

This manual is an informational resource designed to assist dry cleaning facilities with waste minimization in operations. Excessive waste is an indicator of the inefficient use of raw materials and resources. Through proper education and training, businesses can minimize the amount of liquid, solid, and gaseous waste in Pinellas County, while improving their economic viability.

Some of the ideas presented in this manual may not be practical for all dry cleaning facilities. Each business is encouraged to evaluate waste reduction opportunities based upon their facility’s individual operations. The same waste reduction idea that works for one business may not necessarily work for all. Additional opportunities may exist beyond those identified in this manual.

Manuals are developed by the Pollution Prevention and Resource Recovery Section of the Pinellas County Department of Environmental Management, a non-regulatory program that provides waste reduction technical assistance. Program staff provide information on new technologies, process modifications, substitute products, and current industry-specific Best Management Practices (BMPs). Staff can assist businesses in their efforts to become more efficient, profitable, and competitive, while complying with regulatory requirements. As a Pinellas County business, no fees are charged for using the Pollution Prevention Program’s services. On-site waste reduction assistance is available by contacting program staff at (727) 464-4761.

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Introduction

The 1990 Clean Air Act Amendments (CAAA) require dry cleaners to reduce emissions of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). Facilities using these chemicals will be required to lower their air emission levels to those established in Maximum Achievable Control Technology (MACT) standards. Title III of the CAAA lists perchloroethylene (perc) as one of the 189 chemicals to be regulated as hazardous air pollutants (HAPs). Perc is the most common solvent used in dry cleaning facilities. The MACT standards for dry cleaners using perchloroethylene have been in effect since September 22, 1993.
Regulatory requirements can increase operating cost while decreasing a businesses ability to compete. In fact, increased competition demands reducing costs.

However, Best Management Practices (BMPs) and new technologies are available that offer facilities an opportunity to comply with the regulations and reduce emissions while saving money and improving efficiency. Waste reduction practices can:

✓ Reduce the use of raw materials
✓ Minimize the expense of waste disposal
✓ Reduce the exposure of workers and the general public to hazardous and toxic materials
✓ Reduce the threat of product liability
✓ Maximize compliance with environmental regulations and requirements

By practicing waste minimization you can improve your bottom line while increasing your business’ competitive ability.

What is Pollution Prevention?

Pollution Prevention (P2) is the reduction or elimination of pollutants or wastes at the source. The idea behind pollution prevention is to avoid producing wastes in the first place. If you eliminate the waste at its source, you eliminate the associated waste management issues such as handling, storage and disposal. Having less waste means a better environment for all of us.

Consider Waste Minimization and Pollution Prevention

Dry cleaners use many hazardous chemicals and dry cleaning operations generate both non-hazardous and hazardous wastes, in all physical states: liquid waste, solid waste, and air emissions. In addition, increased production costs, competitive demands and business liability for employee chemical exposure are concerns. Potential contamination of the air, water and land could result if these wastes are released to the environment. Pollution prevention is one approach to reducing toxic hazardous air pollutants (HAPs) and emissions of volatile organic compounds (VOCs). Preventing pollution is more cost effective than installing control devices and managing wastes.
Waste reduction techniques include:

✓ Improved operations and maintenance  
✓ Use of new technologies  
✓ Use of substitute chemicals  
✓ Inventory management  
✓ Water and chemical conservation  
✓ Production process modification  
✓ On-site recovery, recycling, and reuse

What can you do?

Pinellas County Department of Environmental Management (DEM) is encouraging every business to reduce pollution by starting a waste reduction program. Many pollution prevention practices are low-cost and low-risk alternatives to help minimize waste and their associated disposal costs. Most of the approaches are based on common sense and do not require sophisticated technology. This booklet contains some ideas to get you started. Your shop may already be using pollution prevention practices without realizing it!

Dry Cleaning Machines

Two basic types of machines are used for dry cleaning:

✓ Transfer systems use separate machines for washing-extraction and drying processes. Clothes are manually transferred from the washer-extractor to a dryer or reclaimer. Petroleum-based solvents are typically used in transfer machines.

✓ Dry-to-dry systems use the same machine for the cleaning, extraction and drying cycles. Dry-to-dry machines can be:

◆ Standard (vented) dry-to-dry machines, designed to vent residual solvent vapors to the atmosphere or vapor recovery equipment during the aeration cycle.

◆ Non-vented dry-to-dry machines (no aeration cycle), essentially closed systems, with built-in emission control equipment, and are open to the atmosphere only when the machine door is open for loading and unloading of clothes.
Dry Cleaning Chemicals

Typically one of three types of cleaning solvents is used:

✓ Perchloroethylene (PCE or simply “perc”): Perc, also known as tetrachloroethylene, is the most commonly used dry cleaning solvent, accounting for about 90 percent of all dry cleaning in the United States. Perc is non-flammable and provides high quality results at a relatively low cost. Unfortunately, this chlorinated solvent is toxic and designated as a hazardous air pollutant (HAP) under Section 112 of the Clean Air Act Amendments of 1990. Facilities using these chemicals are required to lower their air emission levels to those established in Maximum Achievable Control Technology (MACT) standards.

✓ Petroleum solvents (e.g. stoddard, quick-dry, or low-odor): Many new non-chlorinated petroleum solvents are being formulated that are not flammable (Flashpoint > 140°F). Wastes from the use of these substances may be hazardous, but their air emissions are not regulated as closely as perc. Non-flammable solvents are classified as Type III A Dry Cleaning plants (under the National Fire Prevention Association, NFPA 32, Standard for Dry Cleaning Plants, 2000 edition). The risk of fire is reduced, thus the fire code requirements are less stringent. Contact your local fire department regarding specific fire code requirements.

✓ Fluorocarbon 113 or Trichlorotrifluoroethane (Valclene™): Title VI of the Clean Air Act Amendments of 1990 mandated the phase-out of the production of certain ozone-depleting substances by January 1, 1996. This included Fluorocarbon 113 or Trichlorotrifluoroethane (Valclene™), also known as freon 113. These chemicals are not flammable, but are not as effective in cleaning and are more expensive than some of the other available cleaning solvents. Fluorocarbon 113 also is toxic and persistent. Other solvents used are trichloroethylene, 1,1,1-trichloroethane, also known as methyl chloroform, and carbon tetrachloride. These halogenated solvents used to a limited degree in dry cleaning are subject to a production phase-out schedule under the Clean Air Act, as amended.
Atmospheric Emissions in Dry Cleaning Operations

Two major pathways for solvent losses exist in dry cleaning operations: emissions to the atmosphere and losses in the generated wastes. In addition, solvent can be lost in the discharged wastewater.

Atmospheric emissions can occur at several locations in the dry cleaning operation and are estimated to account for 44 to 74 percent of total solvent losses. They can be process or fugitive emissions.

Process Emissions

Process emissions occur in transfer machines during the washing and aeration cycles and in vented dry-to-dry equipment during the aeration cycle. Other potential sources include stills, other auxiliary equipment and cleaning equipment emissions during door openings. Process vent emissions can be reduced using a non-vented dry-to-dry machine (no aeration cycle), or by passing process vent emissions through a refrigerated condenser and/or carbon adsorber.

Refrigerated condenser systems reduce vapor losses. The condensers recover solvent vapor emissions by cooling the air stream to a temperature below the solvent’s dew point. This causes the solvent (and usually water vapor) to condense into a liquid form.

Refrigerated condensers can be used in the following areas:

✓ On the air stream at the end of the drying cycle
✓ On the air stream at the final exhaust point for the process
✓ On the air stream received from the washer in transfer-type machines
✓ On the vapors from the dryer during the drying cycle (this air stream is continually passed through the condenser and back to the dryer)

It is important to maintain the proper condensing coil-in and coil-out temperatures. Generally the exhaust on the outlet side of a refrigerated condenser should be equal to or less than 45°F (7°C). Also, a temperature difference of at least 20°F (11°C) between inlet and exhaust may be recommended. Regular measurement and recording of the exhaust and inlet temperatures may be required.
Carbon adsorbers remove vapors from an air stream by absorbing the vapor onto the surfaces of a bed of activated carbon. Carbon adsorption (sniffer) units can handle high air flows with low solvent concentrations. These units can reduce solvent vapors in exhaust by up to 95%.

**Sniffer units can be used in the following areas:**

✓ Secondary add-on control, after refrigerated condensers to “clean” the air even further and capture low concentrations of solvents

✓ Control for fugitive emissions

**To optimize performance of the carbon adsorber units:**

✓ Determine and maintain the maximum or optimum ratio of clothes cleaned for the quantity of activated carbon used.

✓ Maintain the optimum solvent to carbon ratio to ensure that the stripping is done at proper intervals according to equipment manufacturer’s instructions.

✓ Determine and maintain the optimum airflow rate passed through the carbon bed.

✓ Determine and maintain the optimum steam pressure used to strip solvents from the carbon bed. This steam and solvent mixture can then be separated and the solvent distilled for reuse.

Regular monitoring of the concentration of perchloroethylene in the exhaust from the carbon adsorbers may be required. This can be performed using a colorimetric tube when the adsorber is operating at the finish of a dry cleaning cycle. Carbon adsorber exhaust concentrations should generally be less than 100 ppm. For no-vent type carbon adsorbers the perc concentration inside the dry cleaning drum at the finish of the cycle should be less than 300 ppm.

**Fugitive Emissions**

Potential fugitive emission sources include evaporation during clothes handling in transfer operations, equipment leaks, open containers, losses during solvent transfer, distillation wastes, and evaporation from wastes stored for disposal (e.g. spent filters, muck, and distillation equipment still bottoms).
Equipment leaks can account for up to 25% of the solvent emissions from dry cleaning operations.

**Leaks can be detected by:**

- Perchloroethylene odor
- Visual observations, such as dripping or puddles of liquid
- Sense of touch, by simply running your hand near equipment surfaces
- The use of a halogenated hydrocarbon detector. This is usually the most accurate, reliable, and quickest method.

Places to check for leaks include: hose and pipe connections, fittings, couplings, and valves; door gasket seating; filter gaskets and seatings; pumps; solvent tanks and containers; water separators; “muck cookers”; distillation units; exhaust dampers; diverter valves; and cartridge filter housings.

**Documentation of regular leak inspections is required. If fugitive equipment leaks are detected:**

- Begin the process of repair within 24 hours
- If you need parts they should be ordered within 2 days
- Install parts within five days of receipt
- Actions taken to repair identified leaks should be documented

Regular maintenance checks can minimize the potential for both liquid and vapor leaks.

**Your facility maintenance program should include:**

- Periodically replacing the seals on the dryer deodorizer and aeration valves, the door gasket on the button trap and the gasket on the cleaning machine door
- Repairing holes in air and exhaust ducts
- Checking hose connections and couplings
✓ Cleaning lint screens to avoid clogging fans and condensers
✓ Cleaning filters preceding carbon filters weekly
✓ Checking baffle assembly in cleaning machine bi-weekly
✓ Checking air relief valves for proper closure
✓ Monitoring for vapor losses with solvent leak detectors
✓ Checking to see that your water/solvent separator is working correctly. (If there is an unusually large amount of “perc” in your collection bucket, it is not working correctly).

**To reduce fugitive emissions:**

✓ Replace transfer machines with dry-to-dry machines. Transfer systems typically produce higher solvent emissions, because of the need to handle the clothes after the extraction cycle. Fugitive emissions from dry-to-dry equipment can be as much as 50 percent less than from transfer units, because the need for handling the clothes is eliminated. For transfer machines, the tumblers or reclaimers may not be replaced. Any machine replacements must be with dry-to-dry machines. Any new sources must use dry-to-dry machines.

✓ Use a room or hamper enclosure. An enclosure that provides a complete vapor barrier reduces solvent release during transfer. A room enclosure is a stationary structure enclosing transfer-type dry cleaning machines. Air in this room enclosure can then be vented to a carbon adsorber or similar control device. (Contact Pinellas County Air Quality Division at (727) 464-4422 for specific source category requirements).

**Hazardous Wastes Generated in Dry Cleaning Operations**

*Typical hazardous materials used in dry cleaning operations include:*

✓ Solvents used for cleaning, (perc, Valclene™ and other chlorinated solvents, and petroleum based solvents)
✓ Spot removers
A variety of hazardous wastes are generated by the dry cleaning industry, such as waste solvents, used filters and filter cartridges, still bottoms, muck, contaminated condensate water and absorbents, and solvent containers. The typical wastes, their hazardous properties, and EPA waste code include:

- Waste solvents produced by equipment without recycling units
  - The most common waste solvents include:
    - Perchloroethylene: toxic, persistent, code F002
    - Valclene™: toxic, persistent, code F002
    - Stoddard solvent: ignitable, code D001
- Used filters and filter cartridges, (paper filters and carbon or diatomaceous earth) contaminated with solvent
- Sludges (still bottoms) from distillation and cooked powder residue (muck) from the filtration systems of used solvents contain dirt, oil, grease, detergent, and solvent
- Containers in which solvent is sold are considered hazardous waste unless they are being recycled, reused or are legally empty, as defined in the hazardous waste rules
- Condensate water contaminated with solvents and any absorbents used in cleaning floor and/or spills

The EPA waste code for all of the above would be either F002 or D001, depending on the solvent contamination. A discussion of each of these wastes follows and potential pollution prevention opportunities are discussed.

**Distillation Residues**

On-site distillation is the primary method used in purifying and recovering
dry cleaning solvent for reuse. Distillation residues, or still bottoms, may still contain as much as 50% solvent in addition to any non-volatile components, such as dirt, detergents, waxes, oils, greases, etc. These still bottoms are a Resource Conservation and Recovery Act (RCRA) hazardous waste and must be handled and disposed of properly. Regularly remove the residues in distillation units to improve their efficiency.

The addition of steam (water) can enhance distillation, but will also increase the volume of wastewater. The mixture of water with distillation residues can form a perc/water azeotrope that boils at a lower temperature than pure perchloroethylene. As a result, the distillation rate increases and perc separates more completely from the non-volatile components. To recover more solvent or reduce solvent content in the residue after a first boil-down, add water and redistill the residue. However, this can also increase the volume of wastewater (Refer to “Wastewater & Perchloroethylene” on Pg. 11). Vents from distillation units can be ducted directly to refrigerated condensers and carbon adsorber beds to minimize vapor emissions, if economically possible.

**Cartridge Filters**

Continuous filtration is employed to remove dirt and other contaminants from solvent during the cleaning cycle. Different types of filters used in dry cleaning include cartridge filters, powder filters, and disc filtration systems. For additional protection, polishing filters can be installed downstream of the main filter.

Cartridge filters with carbon cores are the most common type of filter used in dry cleaning.

Spent cartridge filters are a RCRA hazardous waste and must be handled and disposed of properly.

Cartridges should be drained for at least 24 hours in a closed container. These cartridges can contain as much as 1 gallon of solvent. Filters can be dried in enclosures that are vented to a refrigerated condenser and/or carbon adsorbers.

Steam can be used to strip and recover additional solvent from the cartridge. This solvent and water mixture can then be separated and the solvent reclaimed in a distillation unit.
Determine and maintain the optimal amount of clothes cleaned per standard cartridge before replacement or stripping is necessary. When stripping is necessary, determine and use the optimal steam pressure for stripping cartridges. Hot air that is vented to a refrigerated condenser and/or carbon adsorber bed can be used for stripping cartridges. This can help to reduce wastewater if steam is normally used to strip cartridges.

**Filter Muck**

When dirty solvent is passed through a filter it creates a reusable solvent and filter “muck”. Filter muck is a RCRA hazardous waste and must be handled and disposed of properly. A “muck cooker” can be used to heat the muck material and evaporate any solvent. These vapor emissions are then collected, cooled, condensed and reclaimed for reuse. Any residue must be disposed of properly as a hazardous waste.

**Wastewater & Perchloroethylene**

There is a large concern about perc-contaminated wastewater (e.g. “down the drain”) potentially contaminating groundwater. In Pinellas County, our drinking water comes from the ground. Through a series of complex chemical and biological processes, perc degrades in the following sequence:

- Tetrachloroethylene
- Trichloroethylene
- Cis 1,2 Dichloroethylene/Trans 1,2 Dichloroethylene
- 1,1 Dichloroethylene
- Vinyl Chloride

Vinyl Chloride has a potential long-term carcinogenic effects in water, which could affect living organisms, including humans, through ingestion.

Even though water will float on top of perchloroethylene (perc), perc is slightly soluble in water (up to 150 ppm or 0.015%) at standard conditions. The water can be drained off the top and treated, and the perc on the bottom can be collected for reuse.
Potential sources of perc wastewater include:

- Water separators used in condensers, carbon adsorbers, cartridge strippers, stills, and muck cookers
- Wash water from the laundering of industrial rags or garments
- Wash water from laundering with certain spot and stain treatment chemicals

These wastewaters can be passed through carbon filters to reduce the perc levels prior to discharge to sanitary sewers.

**Boilers**

Boilers are often used to generate steam for a variety of applications by dry cleaners. No boiler “blowdown” should be discharged to the ground. Any boiler “blowdown” should be disposed of to sanitary sewers or by another approved method. Contact the local agency that regulates your wastewater for sanitary sewer standards.

**What if you have an accidental spill?**

**If you have an accidental spill:**

- Identify the cause of the leak or spill.
- Stop and contain any leaks. Follow any required repair and documentation procedures. (Refer to “Fugitive Emissions” section on Pg. 6).
- Immediately begin clean-up procedures. Any absorbent materials which are used to clean up the spill must be disposed of properly as a hazardous waste.
- Notify the appropriate regulating authority’s section (Hazardous Waste, Wastewater) and begin clean-up procedures. Florida requires that a discharge of 1 quart or more of dry cleaning solvent be reported to the State Warning Point (904) 413-9911.
- Take steps to prevent similar spills from occurring in the future.

The State of Florida has legislation in the form of a Dry Cleaning Contamination Cleanup Bill that establishes a program to assist dry cleaners in the restoration of potable water supplies that have been contaminated by
perchloroethylene. Dry cleaners that participate are required to register and contribute to the fund each year. In the event of a spill, the fund will act as an “insurance policy” and assist in paying a percentage of the clean-up costs, if the site meets certain eligibility requirements. For more information, please contact the Bureau of Waste Cleanup, State of Florida Department of Environmental Protection (904) 488-019 or S.W. District Office (813) 744-6100.

Pollution Prevention Opportunities

Improve Housekeeping

Poor housekeeping results in spills and overflows. This may double your expense by making you pay to replace lost material and the added costs of waste treatment and disposal. It can also lead to accidents and worker injury. Good housekeeping is one of the easiest and least expensive way to reduce waste.

Here are some tips:

✓ Keep your shop clean and your floors dry. Sweep floors and use dry or damp clean-up techniques. For example, use absorbent material for spills and if necessary, use a very small volume of water for final cleanup. This material should then be disposed of properly.

✓ Practice good inventory control. Mark the purchase date on containers and adopt a “first in, first out” policy, so that older materials are used up before new ones are bought.

✓ Train personnel in proper chemical use and handling.

✓ Keep all containers closed and properly labeled. Lids prevent loss of chemicals through evaporation, spillage and contamination with water, dirt or other materials.

✓ Keep storage and work areas clean and well organized.

✓ Use spigots and pumps when dispensing new materials and funnels when transferring wastes to storage containers to reduce the possibility of spills.
Keep waste streams separate. If hazardous and non-hazardous wastes are combined, all of the waste will have to be treated as a hazardous waste. This can be very expensive and may make recycling impossible.

**Modify Your Process**

- Replace wet-to-dry cleaning units with dry-to-dry units to avoid evaporative losses in the transfer process.
- Use local exhaust ventilation through washer and dryer doors or exhaust hoods between washer and dryer.
- Separate dry cleaning equipment from other laundering operations to control vapors. A separate room and exhaust provides added vapor control.
- Place washer and dryer close in close proximity to each other to minimize transfer losses.
- Use spin disc filters in place of cartridge filters to allow cleaning without opening.
- Install distillation equipment that does not require opening the still to remove still bottoms.
- Use carbon adsorbers that can be regenerated with hot air stripping rather than steam stripping to reduce the waste streams.
- Clean up contaminated wastewaters with double carbon waste water treatment devices or other available technologies and reuse the treated waste water in the process boiler.

**Conserve Energy and Materials**

- Consider new equipment that may use less energy to operate
- Assess all raw materials your operations use and calculate how much ends up as product and waste
- Monitor your water and electricity usage
✓ Identify activities that use water and electricity that could be minimized or even eliminated during non-production hours

Reduce Non-hazardous Waste

✓ Reuse/recycle paper - make two-sided copies; use one-sided copies as scratch paper; donate newspapers to charities for recycling drives; sell waste paper to a recycler.

✓ Recycle cardboard - For large amounts, consider baling and selling if economically feasible; small amounts can usually be given away to a business or charity willing to pick it up, or area packaging and shipping stores for re-use.

✓ Reuse/recycle 55 gallon drums - Return empty drums to the chemical supplier or give them to a company that reconditions and sells them. (These drums must meet the definition of “empty” as defined in 49 CFR Part 261 of the Codes of Federal Regulations).

✓ Encourage customers to use reusable garment bags when picking up dry cleaning instead of the standard light-weight plastic garment covers and encourage them to return hangers for reuse.

Evaluate New Process Technologies

Process technologies are available that offer environmentally sound and safer alternatives to conventional dry cleaning solvents.

✓ Carbon dioxide (CO₂) cleaning uses CO₂ over traditional dry cleaning solvents. CO₂ can be used on a broader variety of fabrics, requires less labor, is more energy efficient, eliminates the risk of heat damage to garments, eliminates the use of toxic chemicals and the generation of toxic wastes and emissions. CO₂ cleaning disadvantages include safety concerns associated with the use of high pressure to maintain CO₂ in liquid form and higher initial equipment costs.

✓ Alternative hydrocarbon solvents and synthetic high purity hydrocarbons have a lower flammability than perc. Flammability
and volatile organic air emissions are still a concern with alternative hydrocarbon solvents.

✓ Multi-process wet cleaning is a new approach that uses the controlled application of heat, steam and natural soaps to clean clothes that typically require dry cleaning. Wet cleaning is still being evaluated for feasibility and long-term benefits to the dry cleaning industry. Disadvantages include potential increases in water use, labor costs and wastewater discharges.

✓ Silicone-based solvent cleaning machines operate very much like perc machines. Industry research to date indicates that current silicone-based alternatives do not contain any VOCs. Results reported on manufacturing web-sites indicate that it is safe, non-toxic and solves the environmental and regulatory issues associated with the traditional use of perc. Manufacturers claim the solvent is odorless, affordable and can be used in small and large dry cleaning operations. The International Fabricare Institute completed a report on the performance of silicone-based solvents. Silicon-based solvents are still being evaluated for feasibility and long-term benefits to the dry cleaning industry.

Consider replacing your cleaning solvent or other hazardous materials with chemicals that reduce the amount or toxicity of the wastes that you generate. For example, if you use a solvent other than perc, use one that is not considered ignitable (flashpoint greater than 140°). Check with your supplier for more information. Always include disposal costs in your evaluation of which raw materials to purchase.

Contact the Pollution Prevention Program at (727) 464-4761 for more information on innovative technologies.

**Hazardous Materials Storage**

*When storing hazardous materials:*

✓ Store products in locations that will preserve their shelf life.

✓ Store on an impermeable (sealed) surface to prevent infiltration should a spill occur.
✓ Store under cover to protect containers from the elements. Check with your local fire department.

✓ Accumulate wastes indoors or in a covered area to prevent moisture from seeping in.

✓ Provide secondary containment that will hold up to 110% of the largest container stored in the area in case a leak or spill occurs. Secondary containment is especially important in areas where perc and perc wastes are stored, waste separator water areas (including filtration/evaporation systems) and all solvent storage (including spotting chemicals).

✓ Label waste containers properly, including contents and date of generation for any hazardous wastes.

✓ Make sure drums are easily accessible but not stored in high traffic areas where they can be easily knocked over.

✓ Properly seal all containers (including waste separator water, lint, and filter containers). Regularly check for any signs of leakage, rust, etc.

What to do with hazardous waste?

✓ Keep all records of hazardous waste handled on-site for at least three (3) years. This includes amounts purchased, stored, reused, and hauled away.

✓ Hazardous waste should be shipped out by a properly permitted hauler to an EPA-approved treatment, storage, and disposal facility. Check for all the proper local, state, and federal licenses.

✓ The facility generating the waste should obtain an EPA identification number from the address below, unless officially classified as a “Conditionally Exempt Small Quantity Generator”. Contact the address below:

Florida Department of Environmental Protection
Southwest District
Hazardous Waste Management
3804 Coconut Palm Dr.
Tampa, FL 33619-8318
(813) 744-6100
Resources

Assistance Centers and Resources

Pinellas County
Department of Environmental Management,
Pollution Prevention Resource Recovery (P2R2) Program:...(727) 464-4761
Air Quality Division:.........................................................(727) 464-4422

Household Electronics and Chemical Collection Center
24 hour Hotline: ..............................................................(727) 464-4623
Utilities/Solid Waste: ............................................................(727) 464-7500

State of Florida
Department of Environmental Protection
Main Switchboard: ...........................................................(813) 744-6100
Hazardous Waste Compliance Assistance Program: ...............(800) 741-4337
Emergency State Warning Point: .......................................(800) 320-0519
Florida Small Business Assistance Program: .........................(800) 722-7457
Pollution Prevention Information Clearinghouse: .....................(202) 260-1023
Earth’s 911 for Community Assistance: ................................(800) 947-3873
Southern Waste Information Exchange (SWIX): .....................(800) 441-7949

United States
Environmental Protection Agency
Region IV, Atlanta: ............................................................(404) 562-9900
Small Business Assistance Ombudsman: .............................(800) 368-5888
Waste Reduction Resource Center: .................................(800) 476-8686
Education and Outreach: ...................................................(800) 241-1754
RCRA/Superfund Hotline: .....................................................(800) 424-9346
Occupational Safety and Health Administration (OSHA): ....(813) 626-1177
Recycling Hotline: ..............................................................(800) 947-3873

Additional assistance is also available through your industrial associations and various programs:

International Fabricare Institute .................................(800) 638-2627
12251 Tech Road ................................................................http://www.ifi.org/
Silver Spring, MD 20904

South Eastern Fabricare Association .................................(877) 707-7332
7373 Hodgson Memorial Dr., Building 3, Suite C ............http://www.sefa.org/
Savannah, GA  31406
Publications/Checklists

Pollution Prevention for the Dry Cleaning Industry
Industrial Waste Section
County Sanitation Districts of Los Angeles County, California
http://es.epa.gov/techinfo/facts/checklist.html

Fact Sheet: Drycleaning and Waste Reduction, November 1988
Office of Waste Reduction, Washington State Department of Ecology
(206) 438-7541
http://es.epa.gov/techinfo/facts/driclean.html

Environmental Protection Agency (EPA) Industry Sector Notebooks
Profile of the Dry Cleaning Industry
http://es.epa.gov/oeca/sector/index.html#dryclean

Acknowledgements

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Pollution Prevention for Dry Cleaners, Metro-Dade County’s Department of Environmental Resources Management’s publication.

Pollution Prevention and Best Management Practices for Dry Cleaners Operating in Broward County, Broward County’s Department of Planning and Environmental Protection, P2 and Remediation Program’s Division publication.

Dry Cleaners Environmental Certification Workbook, Massachusetts Department of Environmental Protection’s publication.

Office of Waste Reduction, Washington State Department of Ecology
(206) 438-7541
http://es.epa.gov/techinfo/facts/driclean.html

EPA Industry Sector Notebooks
Profile of the Dry Cleaning Industry
http://es.epa.gov/oeca/sector/index.html#dryclean
The P2R2 Program can provide additional resources regarding project funding, energy efficiency, product/equipment technology, and technical assistance. For information, contact our program at (727) 464-4761.

The P2R2 Section was developed to minimize the amount of liquid, solid, and gaseous pollution as well as energy & water consumption within Pinellas County.

If you are interested in the economic & environmental benefits of reducing wastes in your business, please contact the P2R2 Section at (727) 464-4761.
The **P2R2** Section’s mission is to minimize the amount of liquid, solid and gaseous pollution as well as energy & water consumption within Pinellas County.

For any additional information, please contact the Pinellas County Department of Environmental Management Pollution Prevention and Resource Recovery Program at **(727) 464-4761**.

**Pinellas County Department of Environmental Management**
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[Website Link]

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