

# Textile Cleaning



## Regulation and Inspection

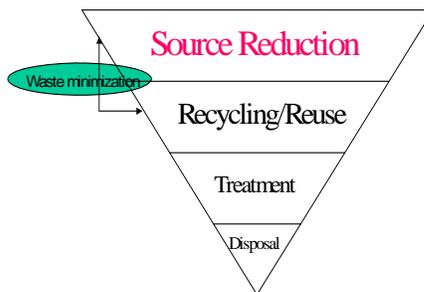
Textile cleaning today can be accomplished using many different cleaning technologies. In the past, the term “Dry Cleaning” was used for operations using Perchloroethylene or Perc chemical for cleaning. Although Perc is a good cleaner, it carries with it many negative environmental and health implications. Perc is toxic, suspected to cause cancer and can be released through the air and can also contaminate property/soil. Because of these concerns, Dry Cleaning facilities are visited regularly by environmental compliance inspectors. Dry Cleaners are responsible for taking several precautions to ensure that customers, workers, and the environment are protected. Dry Cleaning facilities must be equipped to protect workers from exposure to different health risks. Precautions must also be taken to prevent any harmful chemicals or materials from polluting the environment. Complying with environmental laws and reducing health and environmental risks at the source through pollution prevention, is a first step to help ensure worker and community safety. Changing to newer, safer technologies can further these efforts to protect our air, water and land, prevent risk of future liability and even reduce costs associated with the generation of waste.

## New Technologies

New less toxic alternatives to Perc dry cleaning are now available:

- Wet Cleaning
- Icy Water
- Green Jet
- Hydrocarbon
- Pure Dry
- Carbon Dioxide

Waste Management Hierarchy  
(US EPA Policy, 1976)



Pollution prevention (P2) is reducing waste at the source = Source Reduction. P2 is using less toxic materials and using resources efficiently (including water and energy) to reduce the generation of waste. P2 can save businesses money while protecting our environment.

## INSIDE

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**Energy and water** are precious resources for our community. Do your part to save by having an audit done and install the latest technologies; check for leaks and fix immediately; replace incandescent lights with low mercury fluorescent or LED lighting. Visit: HECO [www.heco.com](http://www.heco.com) BWS [www.hbws.org](http://www.hbws.org) (Oahu)



LINDA LINGLE  
Governor

DR. CHIYOME FUKINO  
Director of Health

## Pollution Prevention (P2) Action

First, if you are now using a Perchloroethylene machine or “Perc”, manage your operations appropriately:

- Train staff to avoid spills and exposure;
- Maintain equipment to prevent leaks;
- Dispose of filters, still bottoms and waste-water as hazardous waste.

**Perchloroethylene (Perc) also goes by the name Tetrachloroethylene. Other chlorinated chemicals such as Trichloroethylene (TCE) and Methylene chloride (MeCl), are also suspected to cause cancer and are toxic.**

Secondly, begin developing a business plan to phase out Perc use and save for the purchase of new less toxic technology. All of the following safer alternatives require new machines.

**Wet Cleaning:** This technology has actually been around for decades. It relies on water, detergents, conditioners and degreasers for cleaning of garments. The process involves computerized washer, dryer and specialized finishing/tensioning equipment. Most health and environmental problems are eliminated. Always check ingredients of “spotting chemicals” as some have been found to contain Perc or TCE. Use spotting chemicals that are Perc-free.

**Icy Water:** Like traditional wet cleaning, the icy water technology relies on water, detergents, conditioners and degreasers. Garments can be fully dried in the dryer.

**Green Jet:** Involves using a mist of water and detergent to clean clothes. It is best for lightly soiled clothing.

**Hydrocarbon:** The new hydrocarbon cleaning process uses a solvent that has a higher flashpoint than historical stoddard solvents and although it is still flammable it is less toxic than Perc. The hydrocarbon solvent can be distilled and reused generating very little hazardous waste.

**Pure Dry:** Is another type of hydrocarbon process, however it currently utilizes additives such as perfluorocarbon (PFC) which is a global warming gas of concern.

**Carbon Dioxide (CO2):** Relies on liquid CO2 under pressure. The cleaning process does not require heat so is a gentle cleaner. Carbon dioxide is non-toxic. The CO2 is acquired from other industries and is used in a closed system, preventing the CO2 from entering the atmosphere therefore preventing global warming.

Other technologies such as **Green Earth** (Uses a volatile methyl siloxane (D5) which is toxic and a suspected carcinogen) or **Glycol Ether** (a process using a mixture of flammable ingredients) have safety and health concerns you should be aware of. Always ask for the Material Safety Data Sheet (MSDS) for a product and review it carefully.

TECHNOLOGY	CLEANING CAPABILITY	ADVANTAGES	DISADVANTAGES
PERC	Aggressive	Process easy to use	Not good for delicates
Hydrocarbon	Gentle	Can clean delicates Good hand* In-kind technology	Can have bacterial growth Longer cycle time
Pure Dry	Gentle	Can clean delicates Good hand* In-kind technology	Can have bacterial growth Longer cycle time
Green Earth	Gentle	Can clean delicates Very good hand* In-kind technology	Longer cycle time
Glycol Ether	Aggressive	Cleans water soluble and oil based soils In-kind technology	Longer cycle time Water separation difficult Distillation boil over
Traditional Wet Cleaning	Aggressive	Can clean delicates	Finishing more difficult Not-in-kind technology
Icy Water	Aggressive	Can clean delicates May not need tensioning equipment	Longer drying cycle Not-in-kind technology **
Green Jet	Very Gentle	Can clean delicates Less finishing	Doesn't clean well Not-in-kind technology **
Carbon Dioxide	Gentle	Good hands	Detergent issues Problems with acetate Expensive equipment Not-in-kind technology **

\*the feel of the fabric

\*\* Different than traditional perchloroethylene technology

Chart courtesy of IRTA and San Diego County HMD. Report information available on-line at: [www.dtsc.ca.gov/PollutionPrevention/upload/P2\\_REP\\_Emerging\\_Technology\\_Textile\\_Cleaning.pdf](http://www.dtsc.ca.gov/PollutionPrevention/upload/P2_REP_Emerging_Technology_Textile_Cleaning.pdf)

**Note:** Final determinations of the proper handling and disposal of waste are the sole responsibility of the waste generator. For more information, contact the DOH Solid and Hazardous Waste Branch phone: (808) 586-4226 or visit: [www.hawaii.gov/health/environmental/waste/index.html](http://www.hawaii.gov/health/environmental/waste/index.html)

**“P2 is a choice; being “green” is making that choice.”**

